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135-TRC-05-001

SAFETY COMPLIANCE TESTING FOR FMVSS 135
Passenger Car Brake Systems

Toyota Motor Corporation
2005 Scion tC, 2-Door Hatchback
NHTSA No. C55100

TRANSPORTATION RESEARCH CENTER INC.
10820 State Route 347
East Liberty, Ohio 43319

Final Report Completed: October 15, 2004

FINAL REPORT

Prepared Under Contract No.: DTNH22-01-C-21025

U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
400 Seventh Street, SW
Room 6115 (NVS-220)
Washington, DC 20590

Prepared for the Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-01-C-21025.

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Prepared By _____

Approved By _____

Approval Date: 10/18/04

Final Report Acceptance By OVSC:

_____

Contract Technical Manager, Office of Vehicle Safety Compliance

11/2/04

_____

Acceptance Date

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7. AUTHOR(S): Project Manager: WALTER DUDEK Project Engineer: RANDALL A. LANDES		8. PERFORMING ORGANIZATION REPORT NO.: TRC-DOT-135-056
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15. SUPPLEMENTARY NOTES:		
16. ABSTRACT: Compliance tests were conducted on the subject 2005 Scion tC, 2-Door Hatchback, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-135-00 for the determination of FMVSS 135 compliance. Test failures identified were as follows: None.		
17. KEY WORDS: Compliance Testing Safety Engineering FMVSS 135		18. DISTRIBUTION STATEMENT: Copies of this report are available from: NHTSA Technical Reference Division Mail Code: NAD-40 400 Seventh Street, SW, Rm. 5108 Washington, DC 20590 Telephone No. (202) 366-4949
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1.0 INTRODUCTION

Tests were conducted on a 2005 Scion tC, 2-Door Hatchback, manufactured by Toyota Motor Company, to determine compliance with FMVSS 135 "Passenger Car Brake Systems." All tests were conducted in accordance with the U.S. D.O.T., NHTSA Laboratory Procedure TP 135-00 and/or the corresponding TRC Inc. Test Procedure that was submitted to NHTSA for their approval. The test procedure was clearly described in the submitted document and has not been repeated in this report.

All stops were performed manually.

All tests were conducted by TRC Inc. personnel using the following TRC facilities:

7.5-Mile Test Track
Vehicle Maximum Speed
Burnish
Heating Snubs and Hot Performance Stops
Brake Cooling and Recovery Stops

Skid Pad
Cold Effectiveness Stops
High Speed Effectiveness Stops
Stops with Engine Off
Failed Antilocks
Failed Variable Proportioning Valve (if applicable)
Failed Hydraulic Circuits
Brake Power Assist Unit Failures
RBS Failure
EMF (Battery) Failure

Brake Slope
Parking Brake

Average PFC during the test period was 0.96 (Skid Pad) and 0.95 (Test Track) utilizing the ASTM E1337 w/E1336 tire method.

The test vehicle was ABS equipped. Therefore, the Wheel Lock Sequence and Adhesion Utilization Tests were not performed.

This vehicle met the requirements of FMVSS 135.

DATA SHEET 1 - VEHICLE INFORMATION

VEHICLE SPECS

Year:	2005	NHTSA No:	C55100
Mfr:	TOYOTA MOTOR CORPORATION	GVWR (Kg):	1789.5
Make:	SCION	GAWR Front(Kg):	966.2
Model:	TC	GAWR Rear(Kg):	832.4
Body Style:	2-DOOR LIFTBACK	Wheelbase (mm):	2692.4
Mfr. Date:	05/04	Odometer:	Start:177 MI. End:637 MI.
VIN:	JTKDE177450002006		

BUSES ONLY

Chassis Mfg.:	N/A
Serial No.:	N/A
No. of Seats:	N/A
Manufacture Date:	N/A

Engine Type:	GASOLINE,4 CYL,DOHC,16 VALVE,VVT-I,EFI,PISTON.		
Displacement:	2.4 LITER	Tire Size:	P215/45ZR17
Engine Hspwr:	N/A	Tire Type:	RE92,POTENZA,STEEL BELTED RAD
Idle Speed(rpm):	740	Tire Mfr.:	BRIDGESTONE
Transmission Type:	5-SPEED MANUAL	GVWR Front Press.(kpa):	220.63
No. of Axles:	2	GVWR Rear Press.(kpa):	199.95

BRAKE APPLY SYSTEM

Brake Series:	Front:DISC Rear:DISC	Power Assist Unit:	YES
Brake Actuation (Hydr. Circuit Split):	DIAGONAL	Pwr Unit w/Accumulator:	NO
Power Unit:	VACUUM	Pwr Asst./Pwr Unit w/Backup:	NO
Anti-Skid unit Mfr:	ADVICS	Variable Prop. System:	YES
Parking Mechanism:	NO	Anti-Skid Device:	YES
Type of Parking Unit:	N/A		
Mstr Cylinder Dia(mm):	20.65	Pedal Ratio:	3.1 : 1

FRONT SYSTEM BRAKE COMPONENT MATERIALS AND CONSTRUCTION:

BRAKE TYPE:	DISC	Material:	CAST
Drum Construction:	N/A	LF Drum Shoe Cage Dia.(mm):	0.00
Disc Construction:	INTEGRAL CAST,VENTED	RF Drum Shoe Cage Dia.(mm):	0.00
Front Brake Dia.(mm):	274.64	LF Drum Dia. RESET(mm):	0.00
Fr Disc Thickness(mm):	24.92	RF Drum Dia. RESET(mm):	0.00
Lining Construction:	Bonded		

FRONT BRAKE COMPONENT DIMENSIONS AND CODES:

	Inboard (Leading)	Outboard (Trailing)
Width(mm):	52.53	52.53
Length(mm):	83.03	82.98
Thickness(mm):	11.02	11.10
Lining Code/Color:	PS558H-FF SUMITOMO	PS558H-FF SUMITOM
Hyd. Piston Dia.(mm):	57.15	

R:\DVS\INTRODUCT\SETUP + SETUP2

DATA SHEET 1 - (CONTINUED)

REAR SYSTEM BRAKE COMPONENT MATERIALS AND CONSTRUCTION:

BRAKE TYPE: DISC
Drum Construction: N/A
Disc Construction: INTEGRAL CAST
Lining Construction: BONDED
Rear Brake Dia.(mm): 269.88
Rr Disc Thickness(mm): 8.86

Material: CAST IRON
LR Drum Shoe Cage Dia.(mm): 0.00
RR Drum Shoe Cage Dia.(mm): 0.00
LR Drum Dia. RESET(mm): 0.00
RR Drum Dia. RESET(mm): 0.00

REAR BRAKE COMPONENT DIMENSIONS AND CODES:

Inboard (Leading)
Width(mm): 34.21
Length(mm): 62.61
Thickness(mm): 9.65
Lining Code/Color: PS549-EE SUMITOMO
Hyd Piston Dia (mm): 34.82

Outboard (Trailing)
Width (mm): 34.21
Length (mm): 62.66
Thickness (mm): 9.68
Lining Code/Color: PS549-EE SUMITOMO

OTHER COMPONENT INFORMATION:

Friction-type Park Brake: N/A
Non-Service Brake Type
Parking Brake: HAND-OPERATED.

NOTE: If at any time after the test series has begun, any brake system part requires replacement or the brake system requires adjustments other than permitted in burnish and reburnish procedures, discontinue testing and notify the COTR immediately.

Technician: Karen Easterday KAREN EASTERDAY Date: 10-18-04

Quality Assurance: Ken Webster KEN WEBSTER

VEHICLE: 2005 Scion tC NHTSA NO.: C55100 DATE: 09/01/04

3.0 SUMMARY OF TESTING

		Specification and Limit				TEST RESULTS (In compliance if one stop meets requirement)			
TEST	Loading Condition	Speed (km/h)	Min. Pedal Force (N)	Max. Pedal Force (N)	Stopping Distance Requirement (m)	Shortest Stop Min. Pedal Force (N)***	Shortest Stop Max. Pedal Force Newtons (Average – N)	Shortest Stop Stopping Distance (m) (Corrected)	PASS Fail
Equipment Requirements					Specified Equipment	Vehicle contains specified equipment			Pass
Vehicle Maximum Speed	LLVW	NA				199.6 km/h avg.			NA
Burnish	GVWR	80				200, 80 - 0 km/h stops @ 3.0 mpsps			NA
Wheel Lockup Sequence w/o ABS	GVWR				Lockup of front wheels prior to rear	ABS Equipped			NA
Wheel Lockup Sequence w/o ABS	LLVW					ABS Equipped			NA
Adhesion Utilization w/o ABS	LLVW				Rear axle adhesion utilization curve below specified value	ABS Equipped			NA
Adhesion Utilization w/o ABS	GVWR					ABS Equipped			NA
Cold Effectiveness	GVWR	100	65	500	70	5	490.8	48.5	Pass
High Speed Effectiveness	GVWR	159.7	65	500	spd. depend. – 186.7	5	490.8	117.9	Pass
Stops with Engine Off	GVWR	100	65	500	70	5	414.6	50.6	Pass
Cold Effectiveness	LLVW	100	65	500	70	5	481.2	44.5	Pass
High Speed Effectiveness	LLVW	159.7	65	500	spd. depend. – 186.7	5	466.3	114.8	Pass
Failed Antilock	LLVW	100	65	500	85	5	203.1	49.8	Pass
Failed Proportioning Valve	LLVW	100	65	500	110	5	NA	NA	NA
Failed Hydraulic Circuit #1	LLVW	100	65	500	168	5	483.0	88.5	Pass
Failed Hydraulic Circuit #2	LLVW	100	65	500	168	5	474.7	87.5	Pass
Failed Hydraulic Circuit #1	GVWR	100	65	500	168	5	493.4	97.0	Pass
Failed Hydraulic Circuit #2	GVWR	100	65	500	168	5	481.2	105.1	Pass
Failed Antilock	GVWR	100	65	500	85	5	225.1	56.6	Pass
Failed Proportioning Valve	GVWR	100	65	500	110	5	NA	NA	NA
Regenerative Brake System (RBS) Failure	GVWR	100	65	500	168	5	NA	NA	NA
Electromotive Force (EMF) – Battery Failure	GVWR	100	65	500	70	5	NA	NA	NA
Power Brake Unit Failure	GVWR	100	65	500	168	5	499.5	117.6	Pass
Parking Brake - Uphill	GVWR	-	-	400	Hold for 5 min.?	NA	350.9	Yes-Holds	Pass
Parking Brake - Downhill	GVWR	-	-	400	Hold for 5 min.?	NA	356.3	Yes-Holds	Pass
Heating Snubs	GVWR	120-60	NA	NA	15 Snubs- 3.0 mpsps	5	48 Vis. Avg.	NA	NA
Hot Performance Stop #1	GVWR	100	65	416.8 **avg.**	74.2	5	456.6 (310.2)	54.4	Pass
Hot Performance Stop #2	GVWR	100	65	500	89	5	460.9 (392.8)	50.0	Pass
Brake Cooling	GVWR	50	NA	NA	4 Stops - 3.0 mpsps	5	46 Vis. Avg.	NA	NA
Recovery Performance Stop #1	GVWR	100	65	416.8 **avg.**	One of the two stops between 66.0 and 36.2 meters	5	376.7 (311.1)	48.9	Pass
Recovery Performance Stop #2	GVWR	100	65	416.8 **avg.**		5	418.8 (334.0)	47.9	
Final Inspection-Brake Integrity	Check components for detachment, fracture or lubricants.					No detachments or fractures-normal appear. & colr.			Pass
Final Inspection-Reservoirs/Warning Indicators	Master cylinder or brake power reservoir shall meet the volume and label requirements of S5.4.2 and S5.4.3.					Brake system has sufficient capacity and indicators are in compliance.			Pass

*** Note: The Shortest Stop Minimum Pedal Force represents the minimum force value required to engage the data acquisition's recording mode.

DATA SHEET 3 - VEHICLE WEIGHT

VEHICLE: 2005 SCION TC NHTSA No. C55100 Date: 08/17/04

Tire Pressure(cold): Front (kpa) 221 Rear (kpa) 200
Odometer: Start 177 MI. End 637 MI.
Scale(s) Used: TRC Scales

NOTE: GVWR, LLVW and axle weights to be measured within +0% and -1%.

GVWR/GAWR INFORMATION
(From Veh. Certification Label)

GVWR(Kg): 1789
GAWR Front(Kg): 966
GAWR Rear(Kg): 832

UNLOADED VEHICLE WEIGHT(UVW)

L Front(Kg): 397 L Rear(Kg): 264
R Front(Kg): 396 R Rear(Kg): 257
T Front(Kg): 794 T Rear(Kg): 521
Total UVW(Kg): 1315

TARGET LIGHT LOADED WEIGHT(LLVW):

NOTE 1: LLVW = UVW+181.4Kg
NOTE 2: Weight distributed in front passenger seat area.
NOTE 3: Neither axle load at LLVW less than at UVW; ballast as required.

L Front(Kg): 447 L Rear(Kg): 306
R Front(Kg): 446 R Rear(Kg): 298
T Front(Kg): 893 T Rear(Kg): 604
Total LLVW(Kg): 1497

ACTUAL LIGHT LOADED WEIGHT(LLVW):

L Front(Kg): 452 L Rear(Kg): 308
R Front(Kg): 441 R Rear(Kg): 296
T Front(Kg): 893 T Rear(Kg): 604
Total Actual Test LLVW(Kg): 1497

Load: Driver/Observer 73(Kg) + Instru.41(Kg) + Ballast 68(Kg) = 181(Kg)

FULLY LOADED TEST WEIGHT (ACTUAL GVWR)

NOTE 1: Vehicle loaded so axle loads proportional to GAWR shown previously.
NOTE 2: But no axle weight to be less than at LLVW.
NOTE 3: If weight on any axle at LLVW exceeds the axle's proportional share of the GVWR, the load required to reach GVWR is placed so that the weight on that axle remains the same as at LLVW.

L Front(Kg): 475 L Rear(Kg): 416
R Front(Kg): 486 R Rear(Kg): 413
T Front(Kg): 961 T Rear(Kg): 829
Total Fully Loaded GVWR(Kg): 1789

Load: Driver/Observer 73(Kg) + Instru. 41(Kg) + Ballast 361(Kg)= 474(kg)

Technician: Karen Easterday Date: 10-18-04
KAREN EASTERDAY

Quality Assurance: Ken West
KEN WEBSTER

DATA SHEET 4 - EQUIPMENT REQUIREMENTS (S5)

SERVICE BRAKE SYSTEM (S5.1)

Vehicle equipped with a service brake system acting on all wheels? YES

Wear Adjustment (S5.1.1):
Service Brakes are compensated for wear by means of a system of automatic adjustment? YES
Describe: DISC-AUTOMATIC CLEARANCE TAKE-UP.

Wear Status (S5.1.2):
Wear status of service brakes is indicated by:
(A) Acoustic or optical device? YES
Describe: METAL TAB EMITS HIGH FREQUENCY SQUEAL WHEN WORN.
(B) Visual check outside or under vehicle? YES
Describe: FRONT & REAR: LOOK THROUGH CALIPER.

PARKING BRAKE SYSTEM (S5.2)

Vehicle equipped with a parking brake system of a friction type with solely mechanical means to retain engagement: YES

CONTROLS (S5.3)

(A) Service brakes activated by means of a foot control? YES
(B) Parking brake control is independent of the service brake control? YES
(C) Parking brake control is hand or foot operated? YES
(D) ABS, if equipped, cannot be manually disabled? YES

DATA INDICATES COMPLIANCE: YES

COMMENTS: NONE.

Tester/Technician: Karen Easterday KAREN EASTERDAY Date: 10-18-04

Quality Assurance: KEN WEBSTER

DATA SHEET 5 - VEHICLE MAX SPEED

VEHICLE: 2005 SCION TC NHTSA No. C55100 Date: 08/17/04

Ambient Temperature: 73°F Wind Velocity: 17(MPH)
Road PFC: 92.5 Wind Direction: 192°
Odometer: Start 190(mi) End 207(mi)

TEST WEIGHT: Total (Kg): 1497 Front (Kg): 893 Rear (Kg): 604

ESTABLISH VEHICLE MAXIMUM SPEED

VEHICLE LOAD: LLVW
GEAR: Drive
PEDAL FORCE: N/A
TEST SPEED: Maximum attainable from a standing start in 3.2 km.

IBT: N/A
DECEL RATE: N/A
WHEEL LOCKUP: N/A
INTERVAL: N/A

1. Ballast Vehicle to LLVW
2. Accelerate at a maximum rate from a standing start for a distance of 3.2 km on a level surface.
3. Repeat in opposite direction.
4. Record speed attained in each direction and use the average of the two runs.

	DIRECTION	MAX SPEED (km/h)		Time 0 - 100 KPH (seconds)
		Visual	Recorded	
Run No. 1	South	195.94 kph	195.9	12.16
Run No. 2	North	203.18 kph	203.2	11.93

AVERAGE = 199.6 km/h

COMMENTS: INV DATA, Section 0001, 08/17/04, 11:34:14

Tester/Technician: Karen Easterday Date: 10-18-04
KAREN EASTERDAY

Quality Assurance:
KEN WEBSTER

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/17/04

DATA SHEET 6 - BURNISH AT GVWR

Testing Conditions: INV DATA, Section 0002, 08/17/04, 16:24:05

Weather Conditions: 67°F Wind: 7 mph 212°

Start Odo.: 212 End Odo.: 476

Schedule:
Initial Brake Temperature Less Than 100°C
Initial Speed 80 km/h to zero
200 stops with transmission in gear

Performance Requirements:
Interval between runs: Time necessary to reduce IBT to 100 C° or 2 km distance, whichever occurs first.
Constant decel rate: 3.0 m/s^2
Pedal force adjusted to maintain constant decel.
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	AVG. DECEL (m/sec^2)
1	80.97	81	77	74	74	66.84	51.25	2.63
10	79.60	109	128	131	132	66.84	48.69	2.83
20	80.07	121	130	128	134	54.05	45.12	2.79
30	80.19	118	125	127	129	56.49	44.73	2.92
40	79.75	118	126	124	127	58.01	45.64	2.82
50	80.23	119	123	123	127	58.62	44.15	2.99
60	80.05	120	124	119	118	53.23	41.71	2.86
70	79.75	114	118	121	121	55.24	46.04	2.86
80	79.41	116	119	120	121	66.84	45.37	2.92
90	80.53	116	118	121	121	67.82	43.14	3.02
100	79.99	112	113	110	110	66.84	41.37	2.95
110	78.15	115	114	115	116	62.06	42.99	2.82
120	79.86	112	115	111	116	66.84	41.71	2.91
130	79.80	111	111	112	114	51.58	42.01	2.84
140	80.20	111	108	112	115	57.13	45.49	2.84
150	80.67	106	108	113	115	66.84	43.90	2.90
160	79.61	112	107	112	115	58.56	44.85	2.99
170	80.42	112	109	113	117	66.84	46.00	3.08
180	79.99	111	111	113	115	66.84	44.27	2.97
190	79.80	112	111	113	115	66.84	47.89	2.96
200	79.80	112	112	115	116	56.55	46.19	2.88

COMMENTS: THIS VEHICLE ABS EQUIPPED. DATA SHEETS 7-10 NOT INCLUDED.

BRAKE ADJUSTMENT

Schedule:
Adjust service brakes; record procedure and amount adjusted.

Left Front: DISC DISC BRAKE NO ADJUSTMENT REQUIRED
Right Front: DISC DISC BRAKE NO ADJUSTMENT REQUIRED
Left Rear: DISC DISC BRAKE NO ADJUSTMENT REQUIRED.
Right Rear: DISC DISC BRAKE NO ADJUSTMENT REQUIRED.
DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/18/04

DATA SHEET 11 - COLD EFFECTIVENESS AT GVWR

Testing Conditions: INV DATA, Section 0015, 08/18/04, 09:18:44

Weather Conditions: 70°F Wind: 15 mph 212° Start Odo.: 488 End Odo.: 495

Schedule:
Initial Brake Temperature 65 - 100 C
Initial Speed 100 km/h to zero
6 stops with transmission in neutral

Performance Requirements:
One Stop with:
Stopping Distance less than 70m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	100.25	68	69	71	71	53.2	52.9	472.04	397.43	9.80	7.81
2	100.46	89	91	86	88	49.8	49.4	477.25	412.39	11.58	8.39
3	100.02	87	94	86	87	48.5	48.5	490.75	416.83	11.11	8.25
4	99.97	75	77	62	60	49.9	50.0	488.77	418.02	11.64	8.39
5	100.46	94	93	77	74	48.9	48.4	519.92	417.11	13.83	8.53
6	100.05	95	93	72	73	49.5	49.4	451.27	370.51	11.49	8.30

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

Corrected Distances are used to determine shortest stopping distance.

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: CS5100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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East Liberty, Ohio 43319
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Date Tested: 08/18/04

DATA SHEET 12 - HIGH SPEED EFFECTIVENESS AT GVWR

Testing Conditions: INV DATA, Section 0020, 08/18/04, 10:26:47

Weather Conditions: 75°F Wind: 19 mph 202° Start Odo: 498 End Odo: 511

Schedule:
Initial Brake Temperature: 65-100°C
Initial Speed: 80% max km/h, not greater than 160km/h
6 stops with transmission in gear

Performance Requirements:
One Stop with:
Stopping Distance less than: 186.7 meter
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	160.14	84	81	69	71	127.6	126.8	488.29	409.84	12.89	8.16
2	158.62	78	70	73	71	120.9	122.5	502.52	417.41	14.34	8.08
3	159.52	84	77	64	53	122.0	122.2	465.26	373.55	12.73	8.71
4	159.43	88	78	63	56	123.9	124.2	506.72	395.97	12.45	8.45
5	160.24	87	72	57	51	118.8	117.9	490.75	420.67	12.67	8.74
6	158.71	91	75	63	50	120.6	122.0	505.75	425.41	14.07	8.48

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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DATA SHEET 13 - STOPS WITH ENGINE OFF AT GVWR

Testing Conditions: INV DATA, Section 0025, 08/18/04, 11:54:55

Weather Conditions: 78°F Wind: 17 mph 168° Start Odo.: 512 End Odo.: 520

Schedule:
Initial Brake Temperature: 65-100°C
Initial Speed 100 km/h to zero
6 stops with transmission in neutral

Performance Requirements:
One Stop with:
Stopping Distance less than 70m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.98	93	82	67	50	52.1	52.1	438.86	392.71	9.86	7.80
2	99.15	88	84	64	54	52.2	53.1	453.18	372.00	10.20	7.76
3	99.75	86	83	55	53	58.4	58.7	396.03	306.53	8.91	7.15
4	99.57	76	79	65	63	52.2	52.6	436.70	375.22	10.15	8.05
5	98.86	91	93	69	66	49.4	50.6	414.64	350.88	11.64	8.38
6	99.00	71	76	59	51	50.9	51.9	476.55	421.00	11.20	8.12

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/18/04

DATA SHEET 14 - COLD EFFECTIVENESS AT LLVW

Testing Conditions: INV DATA, Section 0030, 08/18/04, 14:15:41

Weather Conditions: 79°F Wind: 19 mph 192° Start Odo.: 523 End Odo.: 528

Schedule:
Initial Brake Temperature: 65-100°C
Initial Speed 100 km/h to zero
6 stops with transmission in neutral

Performance Requirements:
One Stop with:
Stopping Distance less than 70m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	100.00	79	82	66	62	46.1	46.1	468.09	406.58	13.07	8.72
2	100.42	93	96	70	67	45.2	44.8	478.37	413.73	13.48	8.79
3	99.49	85	89	62	54	46.0	46.5	493.61	385.62	12.50	8.21
4	100.33	93	93	62	57	44.8	44.5	481.72	358.09	13.35	8.02
5	99.57	77	79	53	47	46.2	46.6	504.20	409.26	13.62	8.22
6	99.66	78	82	58	52	45.8	46.1	487.16	393.20	12.67	8.42

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/18/04

DATA SHEET 15 - HIGH SPEED EFFECTIVENESS AT LLVW

Testing Conditions: INV DATA, Section 0035, 08/18/04, 15:10:47

Weather Conditions: 78°F Wind: 16 mph 196° Start Odo.: 530 End Odo.: 540

Schedule:
Initial Brake Temperature: 65-100°C
Initial Speed: 80% max km/h
6 stops with transmission in gear

Performance Requirements:
One Stop with:
Stopping Distance less than 186.7m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	159.48	86	82	56	51	114.5	114.8	466.30	377.90	14.08	8.71
2	157.70	83	70	49	46	111.7	114.5	502.19	406.03	14.76	8.94
3	159.05	88	74	51	48	115.1	116.0	483.51	372.36	14.35	8.90
4	157.50	81	67	46	45	111.9	115.0	496.01	399.07	15.07	8.76
5	157.41	89	73	48	44	113.2	116.4	500.88	409.20	13.81	9.08
6	158.15	82	62	43	42	117.4	119.6	463.59	371.97	14.04	8.73

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/19/04

DATA SHEET 16 - ANTILOCK FUNCTIONAL FAILURE AT LLVW

Testing Conditions: INV DATA, Section 0040, 08/19/04, 09:36:36

Weather Conditions: 75°F Wind: 11 mph 258° Start Odo.: 552 End Odo.: 557

Schedule:
Initial Brake Temperature: 65-100°C
Initial Speed 100 km/h to zero
6 stops with transmission in neutral

Performance Requirements:
One Stop with:
Stopping Distance less than 85m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	98.88	75	79	66	66	52.8	54.0	243.24	159.05	9.79	6.98
2	100.13	93	95	73	72	54.2	54.1	217.94	132.83	9.52	7.03
3	100.15	83	81	54	52	49.9	49.8	203.12	138.37	10.38	7.38
4	99.49	94	88	59	58	50.8	51.3	306.94	142.59	10.81	7.47
5	99.56	94	88	56	56	52.6	53.1	173.65	122.70	10.26	7.29
6	99.26	88	79	50	49	53.0	53.8	196.31	138.70	10.11	7.28

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

How was the ABS failure induced: REMOVED 40 AMP FUSE FROM BOX UNDER HOOD ON LEFT SIDE.

Is brake system indicator lamp activated: YES (X) NO ( )

Vehicle not equipped with variable proportioning valve. Data Sheet 17 not included.*

*See Appendix C.

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/19/04

DATA SHEET 18 - HYDRAULIC CIRCUIT FAILURE #1 AT LLVW

Testing Conditions: INV DATA, Section 0050, 08/19/04, 10:59:24

Weather Conditions: 78°F Wind: 11 mph 271° Start Odo.: 560 End Odo.: 564

Method of simulating failure: Disconnected Brake Line @ M/C Front Port

System Portion Failed: LF & RR

Schedule:
Initial Brake Temperature: 65-100°C
Initial Speed 100 km/h to zero
4 stops with transmission in neutral

Performance Requirements:
One Stop with:
Stopping Distance less than 168m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec^2)	AVG. DECEL (m/sec^2)
1	100.64	41	81	62	40	92.4	91.2	493.88	422.09	7.80	4.26
2	100.53	41	89	61	36	90.0	89.1	479.34	411.17	6.98	4.45
3	99.52	42	93	61	37	90.1	90.9	477.36	412.36	7.07	4.42
4	100.48	40	93	54	38	89.3	88.5	482.99	416.62	7.29	4.31

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)		
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES

Force Needed to Activate Brake Failure Lamp (N): N/A
Fluid Removed (mL) to Activate Brake Failure Lamp: 95

Is brake system indicator lamp activated: YES (X) NO ( )

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/19/04

DATA SHEET 19 - HYDRAULIC CIRCUIT FAILURE #2 AT LLVW

Testing Conditions: INV DATA, Section 0055, 08/19/04, 13:05:44

Weather Conditions: 83°F Wind: 10 mph 229° Start Odo.: 567 End Odo.: 570

Method of simulating failure: Disconnected Brake Line @ M/C Rear Port

System Portion Failed: RF & LR

Schedule:
Initial Brake Temperature 65-100°C
Initial Speed 100 km/h to zero
4 stops with transmission in neutral

Performance Requirements:
One Stop with:
Stopping Distance less than 168m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec^2)	AVG. DECEL (m/sec^2)
1	98.89	79	39	36	62	94.8	97.0	470.58	406.49	7.27	4.09
2	99.81	96	41	36	61	87.1	87.5	474.71	418.08	8.69	4.47
3	99.26	86	43	35	52	90.0	91.3	479.82	411.90	7.45	4.29
4	99.95	84	44	36	51	91.7	91.8	485.60	413.88	7.41	4.20

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES

Force Needed to Activate Brake Failure Lamp (N): N/A
Fluid Removed (mL) to Activate Brake Failure Lamp: 95

Is brake system indicator lamp activated: YES (X) NO ( )

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/23/04

DATA SHEET 20 - HYDRAULIC CIRCUIT FAILURE #1 AT GVWR

Testing Conditions: INV DATA, Section 0060, 08/23/04, 08:40:06

Weather Conditions: 69°F Wind: 2 mph 193° Start Odo.: 585 End Odo.: 589

Method of simulating failure: Disconnected Brake Line @ M/C Front Port

System Portion Failed: LF & RR

Schedule:
Initial Brake Temperature 65-100°C
Initial Speed 100 km/h to zero
6 stops with transmission in neutral

Performance Requirements:
One Stop with:
Stopping Distance less than 168m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.79	28	92	78	31	104.4	104.8	494.05	428.88	5.67	3.74
2	100.32	29	87	60	30	100.3	99.7	486.44	414.16	7.08	3.80
3	99.38	31	83	63	30	100.1	101.3	477.95	410.87	6.26	3.74
4	100.22	33	85	66	31	97.4	97.0	493.44	419.09	6.01	3.82

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES

Is brake system indicator lamp activated: YES (X) NO ( )

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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DATA SHEET 21 - HYDRAULIC CIRCUIT FAILURE #2 AT GVWR

Testing Conditions: INV DATA, Section 0065, 08/19/04, 14:31:53

Weather Conditions: 84°F Wind: 10 mph 241° Start Odo.: 573 End Odo.: 577

Method of simulating failure: Disconnected Brake Line @ M/C Rear Port

System Portion Failed: RF & LR

Schedule:
Initial Brake Temperature 65-100°C
Initial Speed 100 km/h to zero
4 stops with transmission in neutral

Performance Requirements:
One Stop with:
Stopping Distance less than **168m**
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.92	88	44	41	62	105.4	105.6	478.21	415.46	7.72	3.83
2	100.25	90	45	41	59	105.7	105.1	481.62	424.19	7.61	3.71
3	100.02	97	47	41	64	102.3	102.2	500.42	443.48	7.93	3.99
4	99.99	96	48	41	62	103.5	103.5	508.72	424.01	7.42	3.78

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES

Is brake system indicator lamp activated: YES (X) NO ( )

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/23/04

DATA SHEET 22 - ANTILOCK FUNCTIONAL FAILURE AT GVWR

Testing Conditions: INV DATA, Section 0070, 08/23/04, 10:16:47

Weather Conditions: 75°F Wind: 6 mph 199° Start Odo.: 592 End Odo.: 597

Schedule:
Initial Brake Temperature 65-100°C
Initial Speed 100 km/h to zero
6 stops with transmission in neutral

Performance Requirements:
One Stop with:
Stopping Distance less than 85m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.97	74	92	80	67	60.2	60.2	209.09	154.94	9.01	6.26
2	99.96	77	95	71	60	66.3	66.4	198.93	128.47	8.84	5.99
3	99.79	73	88	57	54	61.4	61.6	204.62	156.52	9.12	6.38
4	99.30	77	88	53	57	60.2	61.0	255.54	176.14	9.29	6.51
5	99.68	79	91	51	59	57.2	57.6	214.59	174.71	9.28	6.69
6	99.63	83	94	52	59	56.2	56.6	225.09	172.79	9.45	6.70

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

How was the ABS failure induced: REMOVED 40 AMP FUSE FROM BOX UNDER HOOD ON LEFT SIDE.

Is brake system indicator lamp activated: YES (X) NO ( )

Vehicle not equipped with variable proportioning valve. Data Sheet 23 not included*

*See Appendix C.

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/23/04

DATA SHEET 24 - BRAKE POWER UNIT OR PWR ASSIST UNIT IN/OP AT GVWR

Testing Conditions: INV DATA, Section 0080, 08/23/04, 11:24:25

Weather Conditions: 77°F Wind: 5 mph 208° Start Odo.: 598 End Odo.: 603

Failure Simulation: Disconnect primary source of power.

Method of rendering inoperative: Removed Engine Vacuum Hose at Booster

Schedule:
Initial Brake Temperature 65-100°C
Initial Speed 100 km/h to zero
6 stops with transmission in neutral

Performance Requirements:
One Stop with:
Stopping Distance less than 168m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.13	81	88	50	55	129.4	131.7	493.25	463.20	6.05	3.06
2	100.12	87	91	52	57	122.1	121.8	495.38	468.95	4.98	3.20
3	99.62	88	94	53	58	119.1	120.0	499.76	475.52	5.86	3.29
4	100.18	86	92	49	55	118.0	117.6	499.49	475.03	5.01	3.34
5	99.04	91	97	52	59	118.9	121.2	496.87	461.49	5.10	3.23
6	99.47	78	89	47	54	119.7	121.0	505.39	471.44	5.71	3.25

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

Is the brake system indicator lamp activated: YES ( ) NO (X)

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/23/04

DATA SHEET 25 - PARKING BRAKE AT GVWR

Testing Conditions: INV DATA, Section 0085, 08/23/04, 13:51:10
Parking brake: N/A Non-service type: HAND-OPERATED. Service type: N/A

Weather Conditions: 79°F Wind: 10 mph 127° Start Odo.: 606 End Odo.: 606

Test Weight: Total:1789kg Front: 961kg Rear: 829kg

Schedule:
Initial Brake Temperature <100°C or (Ambient temp. if non-service brake type materials)
Loaded to GVWR with transmission in neutral
Drive onto 20% slope in forward and reverse directions.

Performance Requirements:
Up to Three Applies in each direction:
Parking brake must hold the vehicle stationary in both directions for 5 minutes each.
Pedal force: Hand control: <400 N
Foot control: <500 N

NOTE: For vehicles with parking brake systems not utilizing the service brake friction elements, the friction elements of such systems are to be burnished prior to parking brake tests according to the manufacturer's published recommendation as furnished to the purchaser. If no recommendations are furnished, test the system in an unburnished condition. If recommendations are furnished, record method used.

APPLY #	MAX SERVICE FORCE (N)	MAX P-BRAKE FORCE (N)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	AVG REAR IBT (°C)	DRIVER VEHICLE STOP COMMENTS (Direction of Stop (Up/Down) - Brake holds/fails)			
1	91.2	350.9	34	36	35.0	- 0 REAPPLY	UPHILL	HOLDS	20%
2	76.6	356.3	37	39	38.1	- 0 REAPPLY	DOWNHILL	HOLDS	20%

Is brake system indicator lamp activated: YES (X) NO ( )

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/23/04

DATA SHEET 26 - HEATING SNUBS AT GVWR

Testing Conditions: INV DATA, Section 0090, 08/23/04, 15:05:48

Schedule:
Conduct 15 snubs from 120 Km/h or 80% Vmax, whichever is slower, to 1/2 of initial speed.
Attain required decel in 1 second and maintain that decel.
Interval between snubs is 45 seconds and WOT to initial speed.

Performance Requirements:
Initial IBT for first snub is 55-65°C
Maintain 3.0 m/s/s deceleration
Vehicle Must stay in lane of 3.5m

SNUB #	AVG. DECEL (m/sec^2)	Time Between Snubs (second)	AVG. PEDAL FORCE (N)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	INIT SPD (kph)
1	2.79	--NA--	55.18	62	63	41	42	120.58
2	2.88	46	43.69	109	109	87	88	119.15
3	2.75	46	44.96	158	155	124	122	120.65
4	2.83	45	46.51	196	196	161	154	120.50
5	2.56	45	45.69	229	228	194	184	120.47
6	2.52	44	42.50	252	252	221	208	120.39
7	2.62	46	46.06	266	268	243	231	120.56
8	2.92	45	54.70	279	281	262	251	121.95
9	2.76	44	51.56	292	293	281	270	120.95
10	2.83	45	46.18	295	300	294	285	120.28
11	2.74	45	46.61	300	303	302	296	119.03
12	2.73	45	43.69	300	306	308	306	119.50
13	2.87	45	47.24	300	308	313	313	120.29
14	2.71	46	47.61	302	311	318	318	120.25
15	3.35	45	55.09	302	313	324	322	119.77

STOP #	DRIVER VEHICLE SNUB COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	EAST	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	WEST	YES
6	-	NOX	WEST	YES
7	-	NOX	NORTH	YES
8	-	NOX	NORTH	YES
9	-	NOX	NORTH	YES
10	-	NOX	EAST	YES
11	-	NOX	SOUTH	YES
12	-	NOX	SOUTH	YES
13	-	NOX	SOUTH	YES
14	-	NOX	SOUTH	YES
15	-	NOX	WEST	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/23/04

DATA SHEET 27 - HOT PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 0095, 08/23/04, 15:16:50

Schedule:
Make 2 stops from 100 kph
Pedal Force: 1st stop is done with an average force less than the average recorded in the shortest GVWR Cold Effectiveness stop.
2nd stop is done with a force less than 500 N.
No Lock-Up allowed longer than 0.1 sec above 15 km/h.
Distance Requirements are based on the following:
shortest stop in Data Sheet 11 is: 3
Initial speed of stop: 100.02 (kph)
Actual distance of stop: 48.5 (meter)
Average pedal force: 416.8 (N)

Performance Requirements:
Stop Number 1 must be less than: 74.2 (meter)
In addition the stopping distance for at least one of the of the two hot stops must be less than: 89 (meter)

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	100.11	316	325	340	336	54.4	54.3	456.60	310.15	10.94	6.84
2	99.51	325	335	341	336	49.5	50.0	460.89	392.77	13.60	7.67

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)		
1	-	NOX	WEST	YES
2	-	NOX	NORTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/23/04

DATA SHEET 28 - BRAKE COOLING STOPS AT GVWR

Testing Conditions: INV DATA, Section 0100, 08/23/04, 15:20:19

Schedule:
Initial Brake Temperature:
Achieved on completing Hot Performance
Initial Speed 50 km/h to zero
4 stops with transmission in gear

Performance Requirements:
Constant Decel rate: 3.0 m/s/s
Pedal force adjusted as necessary
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	AVG. DECEL (m/sec^2)	AVG. PEDAL FORCE (N)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)
1	51.02	2.74	48.98	281	296	274	269
2	49.76	2.78	41.71	239	253	233	226
3	50.45	2.93	43.02	201	213	198	194
4	49.80	2.92	45.39	170	183	172	173

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock up - Direction of Stop - Stay in Lane)			
1	-	NOX	NORTH	YES
2	-	NOX	NORTH	YES
3	-	NOX	EAST	YES
4	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

Vehicle: 2005 TOYOTA MOTOR CO NHTSA NUMBER: C55100
Make: SCION
Model: TC
Body Style: 2-DOOR LIFTBACK
Front Cold Tire Pressure: 221 (Kpa)
Rear Cold Tire Pressure: 200 (Kpa)

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Date Tested: 08/23/04

DATA SHEET 29 - RECOVERY PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 0105, 08/23/04, 15:27:04

Weather Conditions: 80°F Wind: 9 mph 164° Start Odo.: 607 End Odo.: 626

Schedule:
Make 2 stops from 100 kph
Pedal Force: Both stops are performed with an average force less than the average recorded in the shortest GVWR Cold Effectiveness stop.

Performance Requirements:
One of the two stops must be within the following limits:
Upper limit of corrected stopping distance: 65.0 (meter)
Lower limit of corrected stopping distance: 35.7 (meter)

No Lock-Up allowed longer than 0.1 sec above 15 km/h.
Distance Requirements are based on the following:
Shortest stop Data Sheet 11 is:Stop 3
Initial speed of stop: 100.02 (kph)
Actual distance of stop: 48.5 (meter)
Average pedal force: 416.8 (N)

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec^2)	AVG. DECEL (m/sec^2)
1	99.46	165	169	165	167	48.4	48.9	376.65	311.06	13.29	7.78
2	100.31	174	192	196	197	48.2	47.9	418.84	334.00	13.07	7.69

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)		
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 10/15/04
Approving Laboratory Official: KEN WEBSTER Date: 10/20/04

DATA SHEET 30 (Part 1 of 5)
6.0 Test Completion Inspection (7.17)

VEHICLE: 2005 Scion tC NHTSA NO.: C55100 DATE: 08/26/04

System Integrity (S5.6)

Each vehicle shall meet the complete performance requirements of this standard without:
(a) Detachment or fracture of any component of the braking system such as brake springs and brake shoes or disc pad facings, other than minor cracks, that do not impair attachment of the friction facings. All mechanical components of the braking system shall be intact and functional. Friction facing tearout (complete detachment of lining) shall not exceed 10 percent of the lining on any single frictional element.
(b) Any visible brake fluid or lubricant on the friction surface of the brake or leakage at the master cylinder or brake power unit reservoir cover, seal, and filler openings.

Friction Material Condition: Primary/Inner		**Friction Material Condition: Secondary/Outer**	
LF	Normal Appearance & Color	LF	Normal Appearance & Color
RF	Normal Appearance & Color	RF	Normal Appearance & Color
LR	Normal Appearance & Color	LF	Normal Appearance & Color
RR	Normal Appearance & Color	RR	Normal Appearance & Color
Drum (or Rotor) Condition:		**Brake Fluid/Lubricant Inside Brakes:**	
LF	Normal Appearance & Color	LF	None
RF	Normal Appearance & Color	RF	None
LR	Normal Appearance & Color	LR	None
RR	Normal Appearance & Color	RR	None
Hydraulic Component Condition:		**Mechanical Component Condition:**	
LF	Good	Brk/Pedal	Good
RF	Good	Power Brk	Good
LR	Good	Stop/Lamp	Good
RR	Good	Linkage	Good
M/Cyl	Good	Other	NA

COMPLIANCE: Yes X No___
Comments: None.

Technician: K. Easterday

DATA SHEET 30 (Part 2 of 5)
TEST COMPLETION INSPECTION (S7.17)

VEHICLE: 2005 Scion tC; NHTSA NO.: C55100; GVWR: 1721 kg
MASTER CYLINDER RESERVOIR:

DATE	08/25/04	Requirements	Pass	Fail
Reservoir Compartments (S5.4.1)				
(1) Does master cylinder have a reservoir compartment for each brake subsystem?	***Yes*** / No	Master cylinder shall have a reservoir compartment for each subsystem.	X	
(2) Does loss of fluid in one compartment result in complete loss from another compartment?	Yes / ***No***	Loss of fluid from one compartment shall not cause complete loss from another compartment.	X	
Reservoir Capacity (S5.4.2)				
Shall conform to requirements (1) or (2), state units:				
(1) For reservoirs having completely separate compartments for each subsystem (two separate, independent reservoirs):				
Subsystem 1 Subsystem reservoir capacity		Each compartment (reservoir) shall have a minimum capacity equivalent to the fluid displacement resulting when all wheel cylinders or caliper pistons serviced by that independent compartment/reservoir moves from a new lining, fully retracted position to a fully worn, properly adjusted, fully applied position. **(Use Data Sheet 31 and Appendix 1A)**	NA	NA
Subsystem 1 Fluid displaced from new to worn lining				
Subsystem 2 Subsystem reservoir capacity			NA	NA
Subsystem 2 Fluid displaced from new to worn lining				
2) For reservoirs utilizing a portion of the reservoir for a common supply to two or more subsystems:				
Total minimum capacity for the entire master cylinder reservoir (includes individual compartment reservoirs)	183 ml	Shall have total minimum capacity for entire reservoir for displacement resulting from all subsystem wheel cylinders or caliper positions moving from new lining to full worn condition as above.	X	
Fluid displaced from new to worn linings (ALL linings) *Value calculated from Data Sheet 31	150.3 ml*			

Comments: None

DATA SHEET 30 (Part 3 of 5)
TEST COMPLETION INSPECTION (S7.18)

VEHICLE: 2005 Scion tC; NHTSA NO.: C55100; GVWR: 1721 kg

MASTER CYLINDER RESERVOIR:

DATE	08/25/04	Requirements	Pass	Fail
Master Cylinder Piston Displacement(S5.4.2) [If Common Reservoir Supply - continued from previous page]				
Fluid displaced by three strokes of master cylinder piston for Primary (Subsystem No. 1)	24.0 ml	Individual partial compartments of reservoir shall **each** have a minimum of fluid equal to at least the volume displaced by the master cylinder piston servicing the subsystem during a full stroke of the piston. **NOTE:** Procedure uses three strokes to ensure an accurate measurement.		
Fluid displaced by three strokes of master cylinder piston for Secondary (Subsystem No. 2)	20.0 ml			
Fluid displaced per stroke, Primary	8.0 ml			
Fluid displaced per stroke, Secondary	6.7 ml			
Fluid available in partial compartment Subsystem No. 1	30.9 ml		X	
Fluid available in partial compartment Subsystem No. 2	35.2 ml		X	
Brake Power Unit Reservoir (S5.4.2)				
Volume displaced in charging system piston or accumulator to normal operating pressure plus wheel cylinder or caliper piston displacement.		Shall have a capacity at least equal to fluid displacement required to charge the system pistons on accumulators to normal operating pressure plus displacement when wheel cylinders or caliper pistons move from new lining to full worn condition as above.	NA	
Reservoir Labeling (S5.4.3)				
Exact copy of reservoir label: On master cylinder reservoir cap: WARNING. CLEAN FILLER CAP BEFORE REMOVING. USE ONLY DOT 3 BRAKE FLUID FROM A SEALED CONTAINER.		Label shall read: "Warning, clean filler cap before removing; use only * fluid from a sealed container". * Fluid type specified in 49 CFR 571.116	X	
Measure letter height	3.9 mm	Letters shall be at least 3.2 mm/ 0.125" high	X	
Describe label attachment method and location. Embossed on the top of the master cylinder reservoir cap.		Lettering shall be permanently affixed, engraved or embossed and located so as to be visible by direct view either on or within 100 mm/3.94 inches of the brake fluid reservoir filler plug or cap.	X	
Does the lettering contrast with the background?	Yes ***No***	If label is not engraved or embossed, letters shall be of a color that contrasts with the background	NA	

Comments: None

Technician: K. Easterday

DATA SHEET 30 (Part 4 of 5)
TEST COMPLETION INSPECTION (S7.18)

VEHICLE: 2005 Scion tC; NHTSA NO.: C55100; DATE: 08/25/04

BRAKE SYSTEM WARNING INDICATOR (S5.5)

CONDITION	ANSWER	REQUIREMENTS	PASS	FAIL
Brake Systems Indicator Lamp Function Check (S5.5.2) (Bulb and systems check)				
Describe location of brake indicator lamp: In lower left quadrant of instrument cluster.	NA	Shall be in front, and in clear view, of driver.	X	
Does lamp light with ignition (start) switch at ON/RUN?	Yes	Automatic activation when ignition switch is "on" when engine **not running**, or ignition between "on" and "start" if is manufacturer check position- OR -single manual action by driver	X	
Does lamp light with ignition between ON and Start?	Yes			
Brake check description in owner's manual?	Yes	Manufacturer shall explain the brake check function test procedure in the owner's manual.	X	
Brake System Warning Indicator ACTIVATION (S5.5.1) DURATION (S5.5.3) FUNCTION (S5.5.4)				
CONDITION	**Light ON?**	**REQUIREMENT**	**PASS**	**FAIL**
A. In event of hydraulic leak (1) On or before appearance of pressure differential of 218 psi (split system)	NA	When ignition (Start) switch is **ON**, lamp must light whenever (A), (B), (C), or (D) occurs. In addition, if service brake system is not a split system, audible warning must be activated when any condition in (A) exists. Visual warning indicator for non-split systems must be flashing.	X	
(2) If any reservoir falls below either "safe" level or 25% of capacity, whichever is greater.	Yes			
(3) On or before supply pressure to brake power unit falls to 50%	N/A			
B. Electrical functional failure in an antilock or variable brake proportioning system.	Yes		X	
C. Application of the parking brake.	Yes			
D. Brake lining wear-out if optical warning	NA			
Must have Audible alarm if not split system and a condition in (a) above exists?	NA			
If condition (A) (2) above does not exist, then fluid reservoir must be **transparent** for fluid check without the need for reservoir to be opened? (S5.4.4)	NA			
Indicator lamps remain activated as long as condition exists - ignition "on", and engine on or off? _____ (S5.5.3 DURATION))	Yes			
Visual warning – continuous or flashing? Audible warning –continuous or flashing?	Yes-Cont. No			

Comments: None.

Technician: K. Easterday

DATA SHEET 30 (Part 5 of 5)
TEST COMPLETION INSPECTION (S7.18)

VEHICLE: 2005 Scion tC; NHTSA NO.: C55100; DATE: 08/25/04

BRAKE SYSTEM WARNING INDICATOR LABELING (S5.5.5)

CONDITION AND REQUIREMENT	ANSWER NOTE: Standard requires that the answer to questions be YES	PASS	FAIL
Are visual indicators legible to driver in daylight and nighttime conditions when activated?	Yes	X	
Are visual indicator words 3.2 mm (.125") high minimum? Record Height: "Brake" - 3.2 mm; "ABS" – 3.2 mm.	Yes	X	
Visual indicator words and background contrasting colors, one of which is red. Record colors Letters –Red, Lens - Black	Yes	X	
If split system, is there one brake indicator? If yes, does it say the word "Brake"?	Yes	X	
If not split system; is there a separate indicator for loss of fluid or fluid pressure? Does this indicator say "Stop-Brake Failure"? Are the letters block and not less than 6.4 mm (.25") in height? Record letter height_____	NA		
If separate indicator for: 1. Low brake fluid per S5.5.1(a)(1), does indicator say "Brake Fluid"? NOTE: not required for mineral oil system Record wording_____ 2. Gross pressure loss per S5.5.1(a)(2), does indicator say "Brake Pressure"? Record wording _____ 3. Electrical functional failure in antilock or variable proportioning system per S5.5.1(b), letters and background contrasting colors one of which is yellow? Record colors Lens – Black, Letters – Amber or yellow Does indicator say "Antilock" or "ABS" or "Brake Proportioning"? Record wording "ABS". 4. Parking brake per S5.5.1(c), does indicator say "Park" or "Parking Brake"? Record wording _____ 5. Brake lining wear-out per S5.5.1(d), does indicator say "Brake Wear"? Record wording NA 6. For any other function? If yes, Record NA	NA NA Yes Yes NA NA NA	X	

Comments: None.
Technician: K. Easterday

DATA SHEET 31 (Part 1 of 2)
CALCULATION OF MINIMUM RESERVOIR VOLUME REQUIREMENTS

VEHICLE: 2005 Scion tC; NHTSA NO.: C55100; DATE: 08/26/04

BRAKE		LINING		
LOCATION	TYPE	DESCRIPTION	MINIMUM THICKNESS	THICKNESS TO FULLY WORN (1) mm*
Left Front	Drum	Leading	Pre-test 11.02 mm	0 mm
		Primary	Post Test 10.54 mm	
		Inboard X	Δ 0.48 mm	
	Disc X	Trailing	Pre-test 11.10 mm	0 mm
		Secondary	Post Test 10.46 mm	
		Outboard X	Δ 0.64 mm	
LINING CLEARANCE:	Diametrical (2): N/A	Inboard – Approx. 0 mm.	Outboard – Approx. 0 mm.	
WHEEL CYLINDER DIAMETER (3) N/A		CALIPER PISTON DIAMETER (3): 57.15 mm (x1 piston)		
SHOE CAGE DIAMETER (4) N/A ; CENTER POINT OF BRAKE ASSY TO CENTER POINT OF W.C. N/A				
Right Rear	Drum	Leading	Pre-test 9.65 mm	0 mm
		Primary	Post Test 9.55 mm	
		Inboard X	Δ 0.10 mm	
	Disc X	Trailing	Pre-test 9.67 mm	0 mm
		Secondary	Post Test 9.17 mm	
		Outboard X	Δ 0.50 mm	
LINING CLEARANCE:	Diametrical (2) N/A	Inboard – Approx. 0 mm.	Outboard – Approx. 0 mm.	
WHEEL CYLINDER DIAMETER (3): N/A		CALIPER PISTON DIAMETER (3): 34.82 mm.		
SHOE CAGE DIAMETER (4): N/A		CENTER POINT OF BRAKE ASSY TO CENTER PT. OF W.C.: N/A		
CIRCUIT #1 CONSISTS OF:	LF	LR - X	RF – X	RR
CIRCUIT #2 CONSISTS OF:	LF – X	LR	RF	RR - X
(1) MFRS. RECOMMENDATIONS – N/A. (2) REAR - TOP OF RIVET HEADS – N/A. FRONT - 1/32 INCH – N/A. MFRS. DATA – N/A.				
(2) DRUM BRAKES, MEASURED AT HORIZONTAL CENTERLINE: N/A.				
(3) MFRS. DATA: N/A. (4) RESET POSITION: N/A.				

Comments: Manufacturer's data/specifications - unavailable.
For the "Thickness to Fully Worn" dimension, zero was used as the default.
Technician: K. Easterday

DATA SHEET 31 – SECTION CONTINUED (Part 2 of 2)

Vehicle: 2005 Scion tC; NHTSA No.: C55100; Date: 10/15/04

Procedure and Example for Determining Master Cylinder Volume Requirement

The procedure followed for determining the minimum volume requirements is outlined in the example shown below. The required data is taken from the previous page.

DISC BRAKES

Volume Required, $V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times [\pi (D^2)]/4$, where –

V_r = Volume required per wheel
Δt = Change in thickness (average)
i = Inboard
o = Outboard
D = Caliper cylinder diameter
c = Average clearance

Using the above equations, the volume requirements for Subsystem No. 1 (LR, RR) and Subsystem No. 2 (RF, LR) were calculated utilizing measured and manufacturer's provided data to create the greatest displacement, as shown below:

Disc Brake: (Front)

$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi D^2}{4}$

Δt_i = 11.02 mm
Δt_o = 11.10 mm
$t_{ic} + t_{oc}$ = 0 mm
D = 57.15 mm
$V_r = (11.02 + 0 + 11.10 + 0) \frac{\pi (57.15)^2}{4}$
= 22.12 (2565.2)
= 56742 mm^3 (x one piston) = 56742 mm^3 = 56.74 ml

Disc Brake: (Rear)

$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi D^2}{4}$

Δt_i = 9.65 mm
Δt_o = 9.67 mm
$t_{ic} + t_{oc}$ = 0 mm
D = 34.82 mm
$V_r = (9.65 + 0 + 9.67 + 0) \frac{\pi (34.82)^2}{4}$
= 19.32 (952.2)
= 18397 mm^3 (x one pistons) = 18397 mm^3 = 18.40 ml

For System 1 (RF, LR)
V_{r1} = 56742 $mm.^3$ + 18397 $mm.^3$ = 75139 $mm.^3$
V_{r1} = 75139 mm^3 = (75.14 ml)

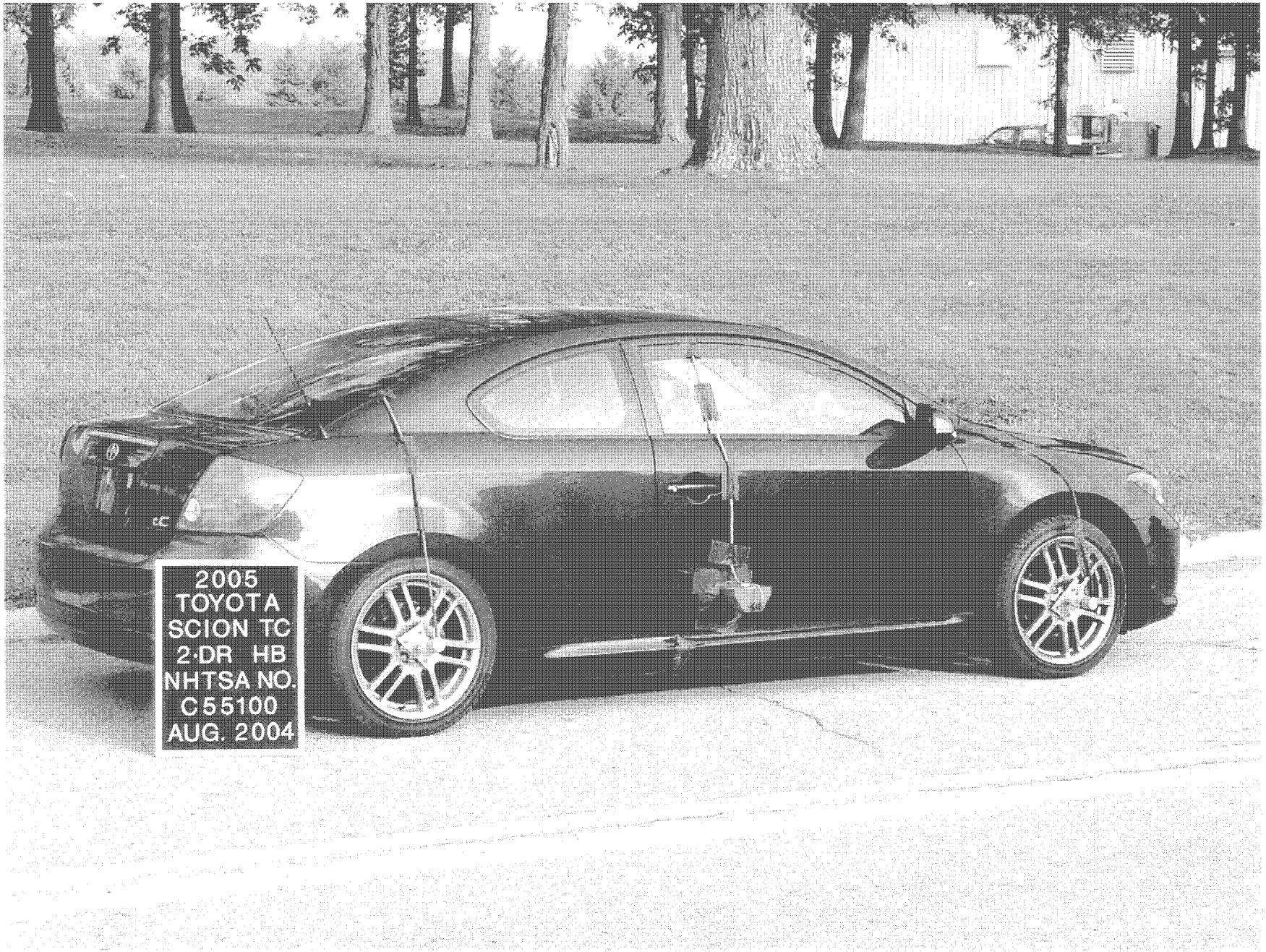
For System 2 (LF, RR)
$V_{r2} = V_{r1}$
V_{r2} = 75139 mm^3 = (75.14 ml)

TOTAL VOLUME REQUIRED = $V_t = V_{r1} + V_{r2}$ = 150278 mm^3 = 150.3 ml*

SECTION 6.0

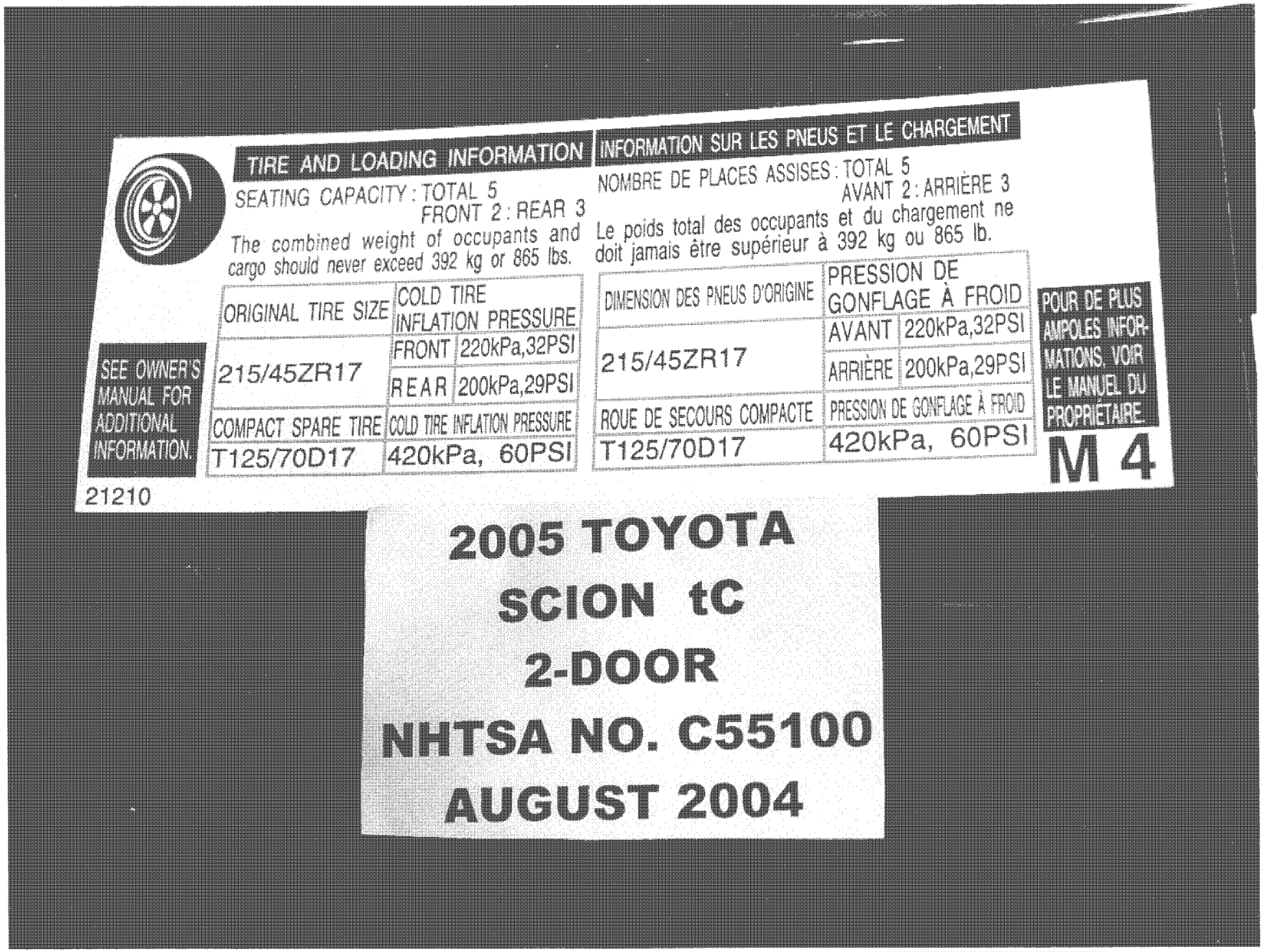
Photographs

¾ Front View @GVWR

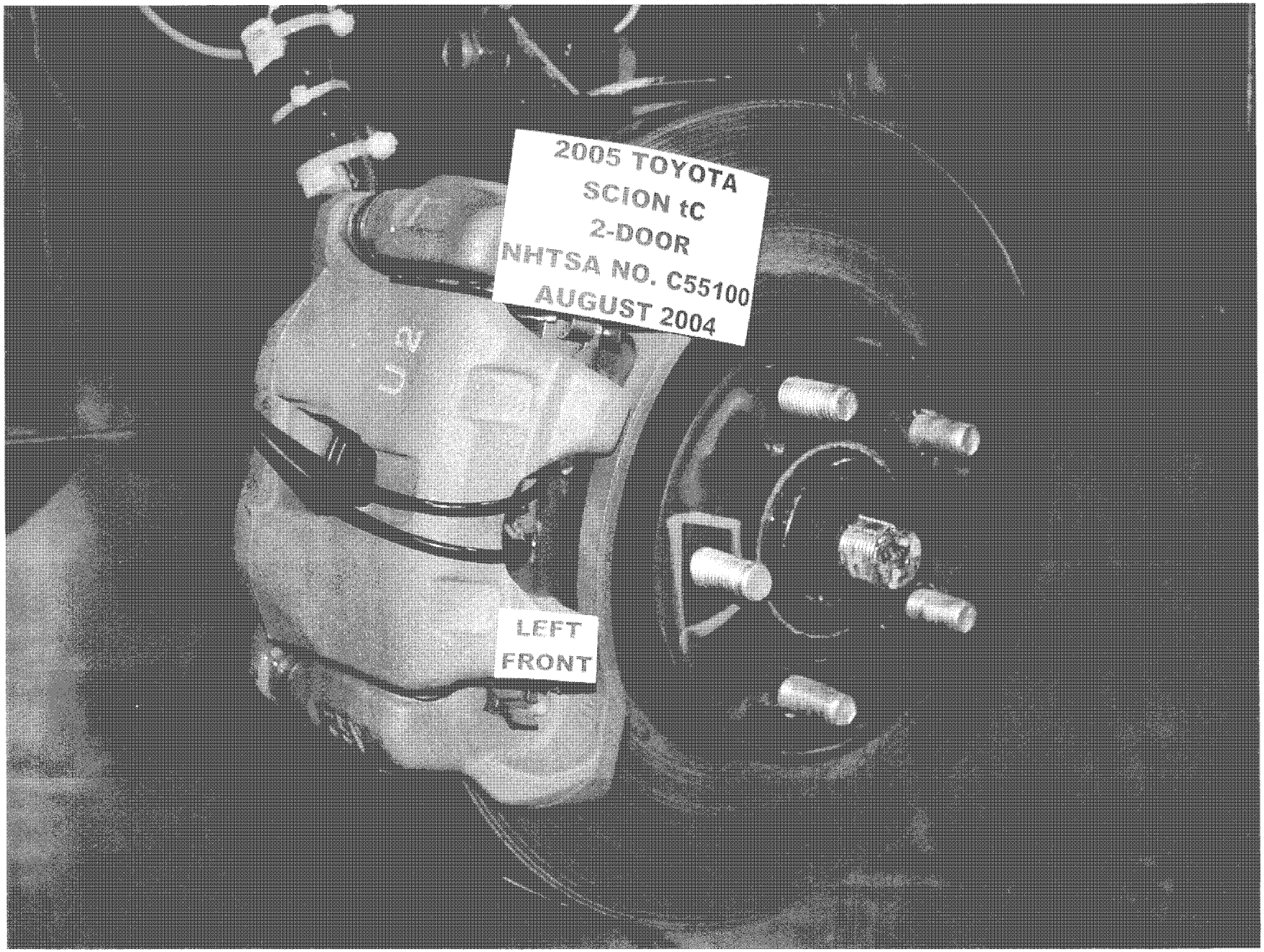


¾ Rear View @GVWR

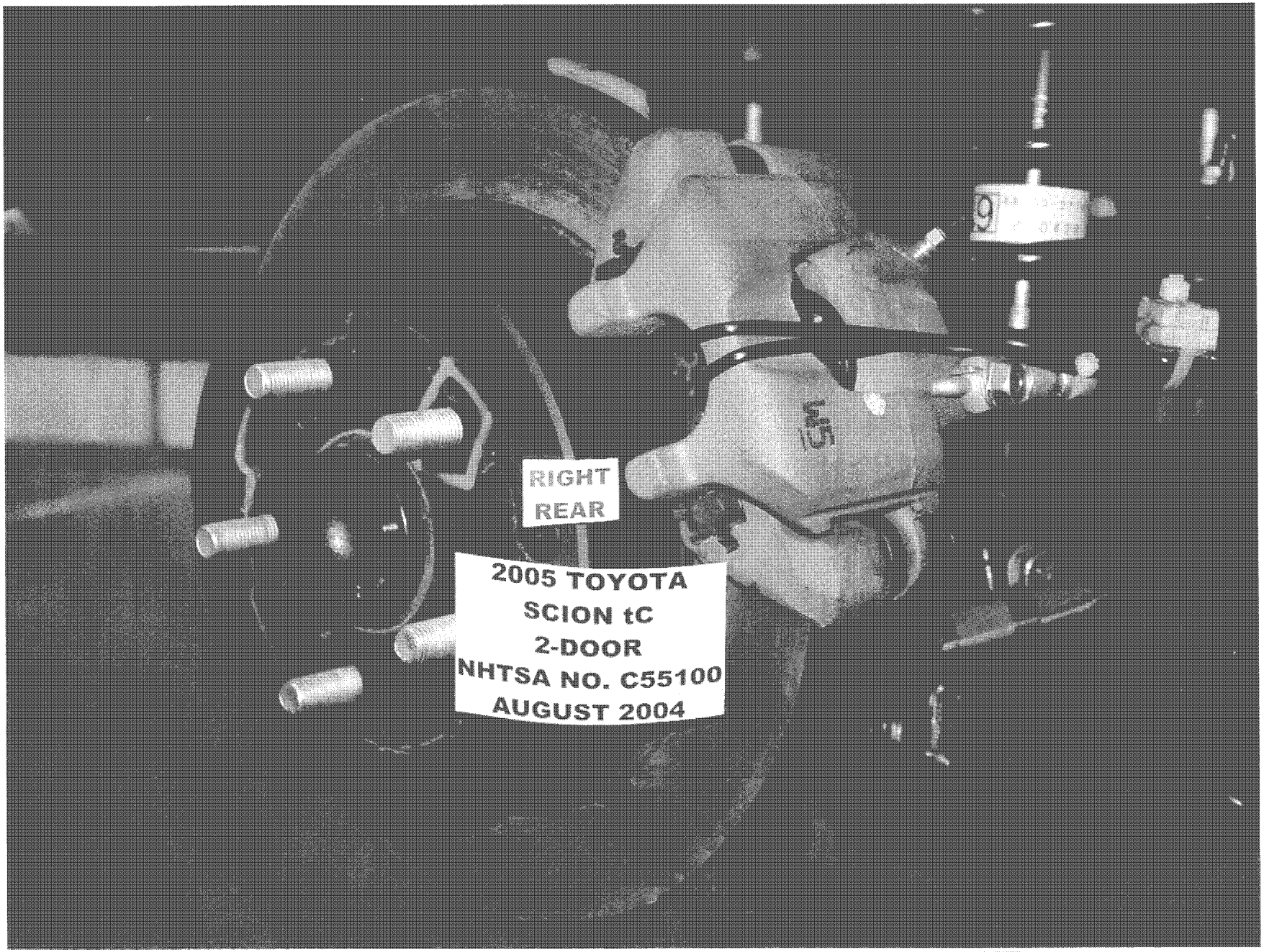
Manufacturer's Information Placard



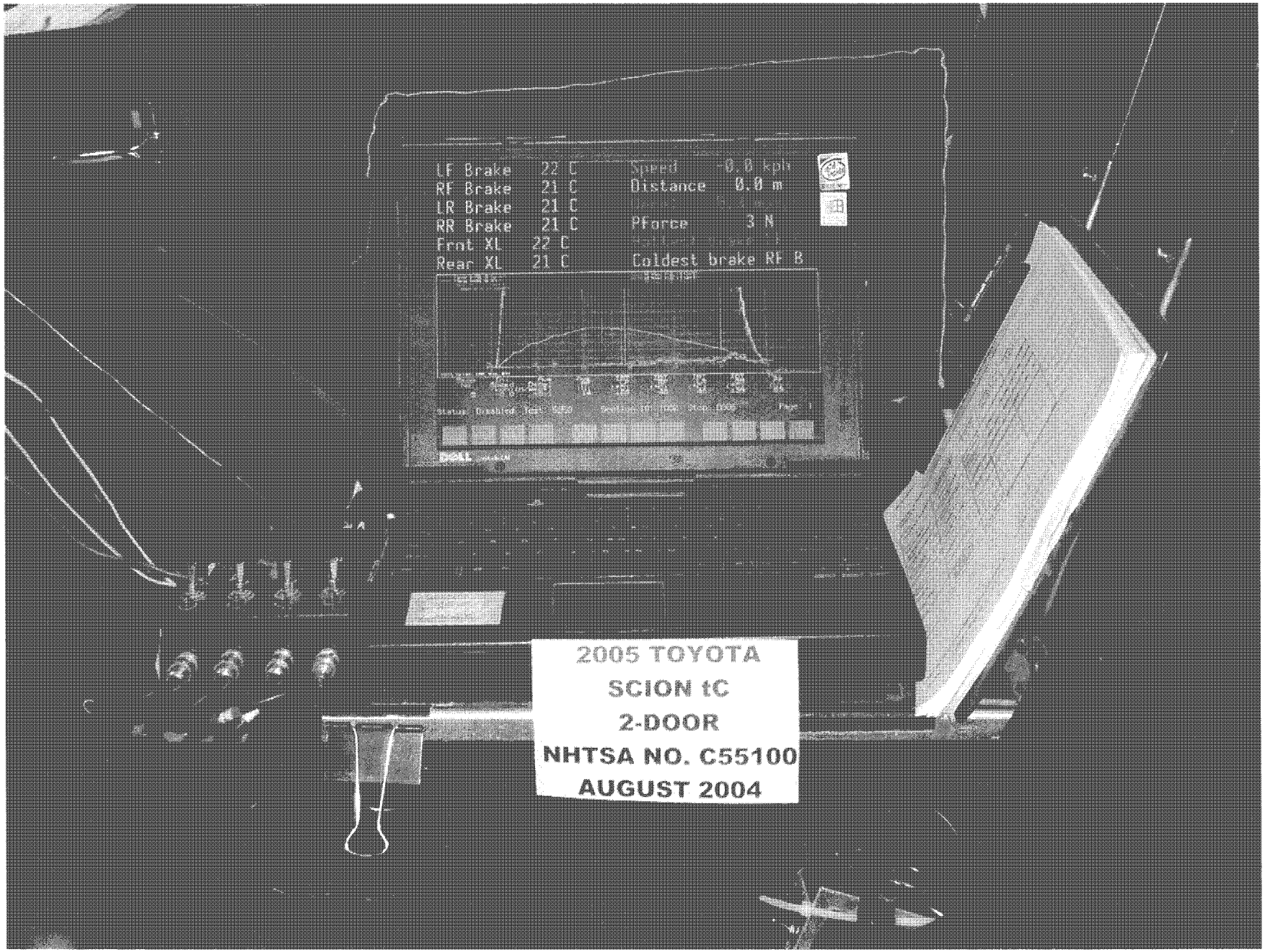
Tire Information Placard



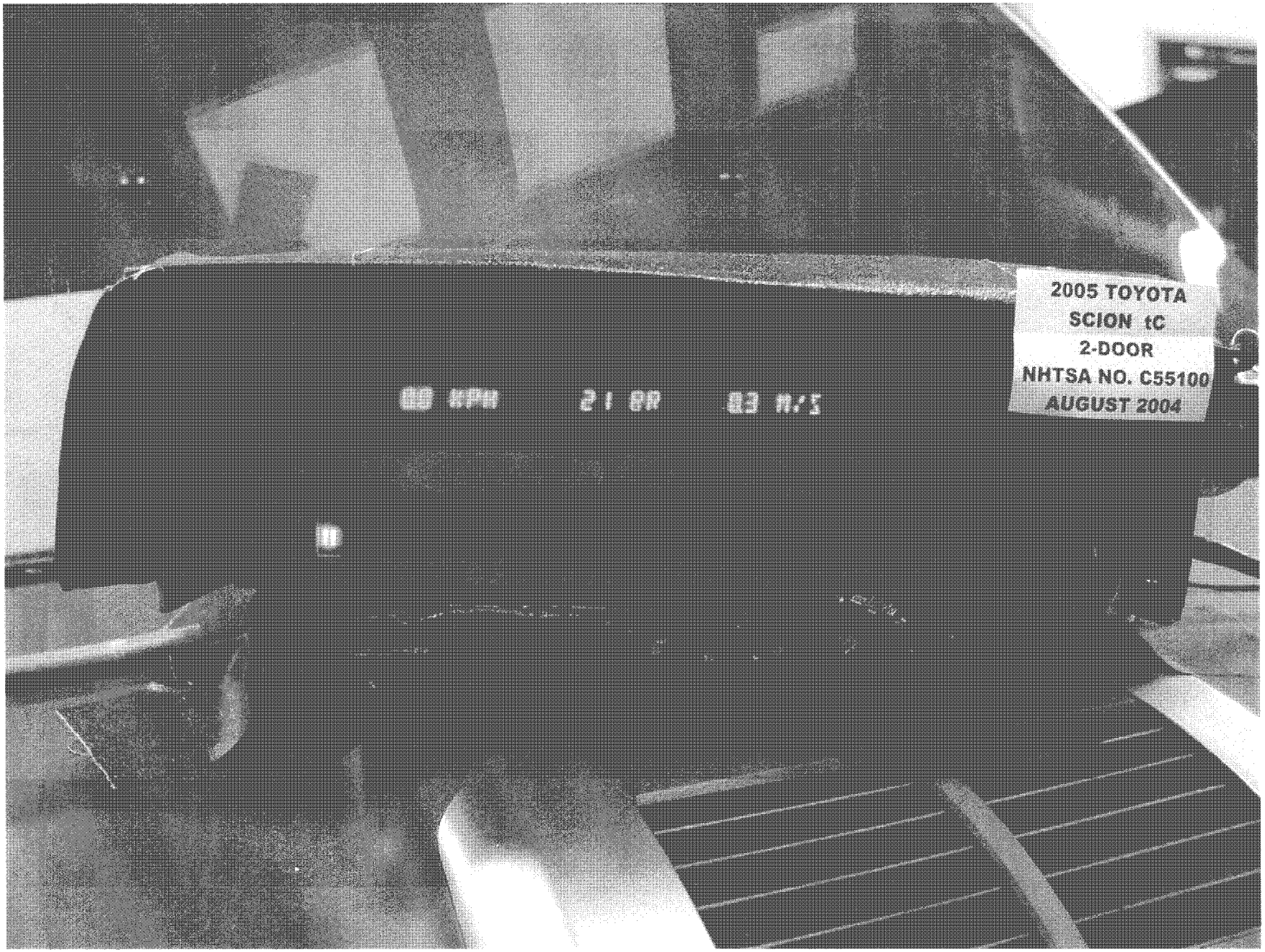
Left Front Rear Brake Assembly



Right Rear Brake Assembly



Instrumentation in Vehicle



Instrumentation in Vehicle

Instrumentation in Vehicle

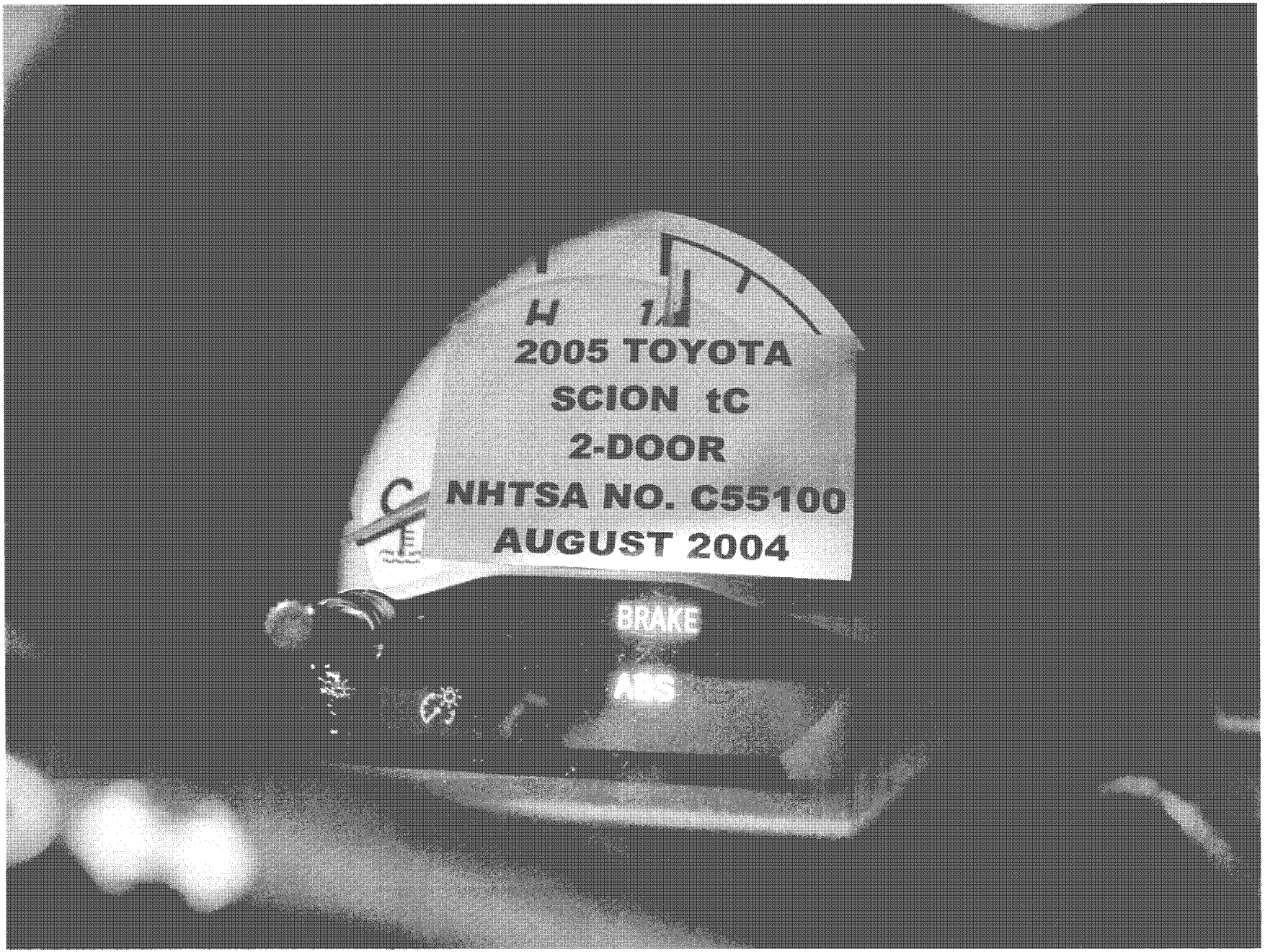
Instrumentation in Vehicle

Ballast and Instrumentation in Vehicle

Vehicle Being Weighed

Ballast in Vehicle

Ballast in Vehicle



Brake and ABS Warning Lamps

Brake Fluid Reservoir Label

7.0 INSTRUMENT CALIBRATION (12 MONTH MAXIMUM INTERVAL)

VEHICLE: 2005 Scion tC; NHTSA NO.: C55100; DATE: 08/16/04

INSTRUMENT	SERIAL NUMBER	CALIBRATION DATE	NEXT CALIBRATION
Data Acquisition System - Link DAS 2030	975016	10/23/03	10/23/04
Computer – Dell Latitude/Link Engrg.	TRC-43207	Not Applicable	Not Applicable
Software - Link Engrg. Rev Data	TRC Propr.	NA	NA
LF Torque Wheel	Not Utilized		
RF Torque Wheel	Not Utilized		
LR Torque Wheel	Not Utilized		
RR Torque Wheel	Not Utilized		
Stopwatch – Accusplit	SW ST03	07/16/04	07/16/05
Tire Pressure Gauge – Ashcroft	AG-05	11/25/03	11/25/04
Voltage Multimeter – Dana 4300	M-108639	11/25/03	11/25/04
Pedal Force Transducer – Sensor Devel.	LC-169755	Each Test	Each Test
Asst. Pipe-Handle Steel Weights - Ohaus	LB-0002	06/22/04	06/22/05
Park Brake Force Transducer – Interface	41721	Each Test	Each Test
LF Hydraulic Pressure Transducer	Not Utilized		
RF Hydraulic Pressure Transducer	Not Utilized		
LR Hydraulic Pressure Transducer	Not Utilized		
RR Hydraulic Pressure Transducer	Not Utilized		
Accelerometer - Setra (+ or – 15 g) 141A	A-1055763	Each Test	Each Test
Fifth Wheel – ADAT DSR-06 Radar	140.0119	Each Test	Each Test
Wind Velocity/Direct. – Davis Model 6410	WXB308193A	09/15/03	09/15/04
Ambient Temp. Gage – Davis Model 6320	WXB308193A	09/15/03	09/15/04
LF Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
RF Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
LR Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
RR Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
Lock-up Detection System	TRC Propr.	Each Test	Each Test
Vehicle Weight – Toledo/Mettler Scales JAGXTREME 3000000, (Bldg. 70)	SN 5225831-5JC	08/06/04	11/06/04

QUALITY ASSURANCE

DAILY CALIBRATIONS (1 of 3)

Vehicle: 2005 Scion tC NHTSA No.: C55100

Deceleration Calibration Data for Unit 5350
Desired full scale value is: 9.81 m/s/s
Allowed deviation is: + or - 0.15 m/s/s

		"Date"	"Time"	Zero	Cal	
		"stp"	"stp"	"Decel"	"Decel"	
Accelerometer	Level to zero, then tilt to full scale	8/17/2004	10:24:12	0.07	9.81	PRE-TEST CAL.
		8/18/2004	9:05:15	-0.04	9.82	
		8/18/2004	16:24:46	-0.06	9.79	
		8/19/2004	9:08:02	0.00	9.79	
		8/19/2004	15:19:47	0.00	9.75	
		8/23/2004	8:29:23	0.10	9.74	
		8/23/2004	15:31:01	-0.07	9.78	
		8/23/2004	16:13:20	0.04	9.82	POST-TEST CAL.

Pre-Test Linearity Check 08/17/04

Actual (m/s/s)	Rec. (m/s/s)
0.0	0.0
3.0	3.0
6.1	6.1
9.8	9.8

Post-Test Linearity Check 08/23/04

Actual (m/s/s)	Rec. (m/s/s)
0.0	0.0
3.0	3.0
6.1	6.1
9.8	9.8

Distance Calibration Data for Unit 5350
Desired full scale value is: 1000 m
Allowed deviation is: 3 m

		"Date"	"Time"	Distance for	
		"stp"	"stp"	1000 meters	
Light beam distance sensor	Drive from 0 to 100 to 0 km/h on a measured kilometer	8/17/2004	11:20:21	1001.3	PRE-TEST CAL.
		8/18/2004	9:14:01	1001.0	
		8/18/2004	16:29:00	1001.3	
		8/19/2004	9:15:37	1001.0	
		8/19/2004	15:27:04	999.8	
		8/23/2004	8:35:34	1001.4	
		8/23/2004	15:46:46	1000.7	POST-TEST CAL.

DAILY CALIBRATIONS CONTINUED (2 of 3)

VEHICLE: 2005 Scion tC NHTSA No.: C55100

Wheel Tachometer Calibrations for Unit 5350

Wheel tachometer calibrations: all wheel speeds should be 15 km/h

Wheel lock detector — While at a standstill, check zeros. Drive vehicle at approx. 15 km/h and engage zero speed switch for each wheel

"Date"	"Time"	Zero	@15km/h	Zero	@15km/h	Zero	@15km/h	Zero	@15km/h	
stp	stp	LF	LF	RF	RF	LR	LR	RR	RR	
8/18/2004	9:09:31	0.0	15.7	0.0	15.7	0.0	15.1	0.0	17.6	
8/18/2004	16:25:52	0.0	19.3	0.0	18.5	0.0	15.7	0.0	28.0	
8/19/2004	9:10:40	-0.1	30.3	0.0	18.0	0.0	15.6	0.3	16.3	
8/19/2004	15:23:23	0.0	18.4	-0.1	16.2	0.0	16.0	0.0	15.6	
8/23/2004	8:33:18	10.7	18.4	11.7	16.8	10.7	16.1	10.2	16.4	
8/23/2004	8:34:04	0.0	19.0	0.0	17.7	0.0	16.0	0.0	16.4	
8/23/2004	15:37:51	0.0	20.2	0.0	18.4	0.0	16.5	0.0	16.3	POST-TEST CAL.

When driven over 15 km/hr and the wheel tach generators are shunted to zero volts, does the graphical screen indicate wheel lock at each wheel position?: __X__ Yes, _____ No.

Note: The wheel tach calibrations did not occur until after the Burnish was complete.

Pedal Force Meter Calibration for Unit 5350

Target shunt calibration is 389 N

Desired recorded value is: 389 N

Desired recorded calibration value is: 500 N

Allowed deviation is: 6.5 N

Service brk. pedal effort — Driver engages a fixed shunt cal switch.

"Date"	"Time"	Zero	Cal Val	
stp	stp	Force	Force lb	
8/17/2004	12:04:44	0.0	498.7	PRE-TEST CAL.
8/18/2004	9:02:09	-0.5	389.7	
8/18/2004	16:22:48	-0.5	389.4	
8/19/2004	9:07:29	-0.5	389.7	
8/19/2004	15:21:48	-0.6	389.7	
8/23/2004	8:28:46	-0.5	389.5	
8/23/2004	15:31:53	-0.5	389.5	
8/24/2004	9:37:08	-0.7	501.3	POST-TEST CAL.

Pre-Test Linearity Check - 08/17/04

Actual	Recorded
Force (N)	Force (N)
0	0
222	223
445	445
498	498

Post-Test Linearity Check - 08/23/04

Actual	Recrdd
Force (N)	Frc(N)
0	0
222	221
445	444
498	497

DAILY CALIBRATIONS CONTINUED (3 of 3)

VEHICLE: 2005 Scion tC

NHTSA No. C55100

Dynamic Speed Calibration for Unit 5350

Desired speed value is: 100 km/h
Allowed deviation is: 1.6 km/h
Desired time value is: 36 seconds
Allowed deviation is: + or - 0.6 seconds

Light beam speed sensor

Drive vehicle at a steady 100 km/h through a kilometer.

"Date"	"Time"	"Speed"	Time"	
stp	stp	km/h	sec	
8/17/2004	11:23:08	100.7	36.05	PRE-TEST CAL.
8/18/2004	9:11:55	100.9	36.15	
8/18/2004	16:27:43	100.4	36.13	
8/19/2004	9:13:22	99.7	36.28	
8/19/2004	15:25:49	100.3	36.15	
8/23/2004	8:31:20	99.8	36.30	
8/23/2004	15:45:30	100.5	36.10	POST-TEST CAL.

APPENDIX A

Copy of Manufacturer's Sticker

DESCRIPTION: **SCION TC**
2 DOOR LIFT BACK

YEAR/MODEL: 2005/6221A

COLOR: BLACK CHERRY PEARL/DARK GRAY

VIN: **JTKDE177450002006** (03P2/14)

PORT/PLANT: PORTLAND

The New Vehicle Limited Warranty provides 36-month/36,000-mile comprehensive coverage, 5-year/60,000-mile powertrain coverage, plus 5-year body panel corrosion perforation warranty. See Owner's Warranty Information booklet for details. An extended service contract may be available for the vehicle. Ask dealer for details.
Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service. Gasoline, license and title fees, applicable federal, state and local taxes and dealer and distributor installed options and accessories are not included in the manufacturer's suggested retail price.

STANDARD EQUIPMENT

MECHANICAL AND PERFORMANCE
- 2.4L 4-Cyl DOHC 16 Valve VVT-i EFI Eng
- 5-Speed Manual Transmission
- Power-Assisted Rack and Pinion Steering
- 4-Wheel Disc Brakes
- Sport Tuned Independent MacPherson Strut Front and Double Wishbone Rr suspension
- P215/45ZR17 All-Season Tires

SAFETY
- 4-Wheel ABS w/Electronic Brake Dist
- Dr & Fr Pass Dual Stage Air Bags (SRS)
- Driver Knee Airbag
- Dr & Fr Pass Seat Belt Pretensioners w/Force Limiters
- Three Across 3-Point ALR-ELR Rear Pass Seat Belts and Head Restraints
- Side Impact Door Beams/First Aid Kit

EXTERIOR
- 17"x7.0" Split Six Spoke Alloy Wheels w/Graphite Finish/Chrome Exhaust Tip
- Multi-Reflector Halogen Headlamps
- Pwr Outside Mirrors w/Turn Signals
- Variable Inter Fr Windshield Wipers
- Rr Fender Mounted Antenna

COMFORT AND CONVENIENCE
- Panorama Glas Moonroof w/Pwr Tilt/Slide
- Sport Fr Bucket Seats w/ Adj Headrests
- Dr Seat w/Height & Seat Bottm Angle Adj
- Dr Seat One-Touch Walk In w/Slide & Seat Angle Memory/Fully Reclin Fr Seats
- 60:40 Split Fold-Down & Reclin Rr Seats
- Pioneer 160 Watt AM/FM/CD with 6 Spkrs & Scion Sound Processing (SSP)
- Air Conditioner w/Soft Touch Controls
- Two-tiered Fabric Covered Center Cnsle
- Pwr Door Locks w/In-Key Remote Entry
- Pwr Windows w/One-Touch Auto Up/Down
- Cruise Control/Rr Window Defogger
- Tilt Steering Wheel/Auto Off Headlamps
- Cargo Area Cover & Under-Floor Storage
- Vanity Mirrors w/Covers/4 Cupholders
- Outside Temp Gauge/Digital Clock
- 12V Power Point & Cigarette Lighter

Full Tank of Gas

* Customers choosing to upgrade from the base audio and/or wheelcovers are paying for the upgrade only and will not receive the standard equipment upon delivery.

Scion is a marque of Toyota Motor Sales, U.S.A., Inc.

Compare this vehicle to others in the FREE FUEL ECONOMY GUIDE available at the dealer.

CITY MPG		HIGHWAY MPG
22	Fuel Economy Information (DOE EPA)	29

Actual Mileage will vary with options, driving conditions, driving habits and vehicle's condition. Results reported to EPA indicate that the majority of vehicles with these estimates will achieve between

18 and 26 mpg in the city and between

24 and 34 mpg on the highway.

2005 SCION TC
4-CYL., 2.4 LITER DISP.,
16V VVT-I, DOHC, SFI
ENGINE. 5-SPEED MANUAL
TRANSMISSION.

Estimated Annual Fuel Cost:

$ 840

For Comparison Shopping, all vehicles classified as

SUB-COMPACT

have been issued mileage ratings ranging from

** to ** mpg city and

** to ** mpg highway.

*INFORMATION NOT AVAILABLE AT TIME OF VEHICLE PRODUCTION.

see www.fueleconomy.gov

MANUFACTURER'S SUGGESTED RETAIL PRICE	**$15,950.00**
OPTIONAL EQUIPMENT	
FE 50 State Emissions	
CF. Carpeted Floor Mats/Cargo Mat	145.00
DELIVERY, PROCESSING AND HANDLING FEE	515.00
TOTAL	**$16,610.00**

Dealer Name / Address: 34085
KINGS SCION
9500 KINGS AUTOMALL ROAD
CINCINNATI OH45249

Ship to:

WC 514
2680 04/03

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APPENDIX B

Discussion on Data

DISCUSSION ON DATA

Symbols for Brake Components

4	-	4 Wheel	G	-	Groan	DL	-	Deceleration (State FPSPS)
X	-	Skid	SQ	-	Squeal	PF	-	Pedal on Floor
L	-	Left	SQK	-	Squeak	SCP	-	Shoe Scrape
R	-	Right	PO	-	Pinchout	RB	-	Rubber Banding
R	-	Rear	P	-	Pull	O	-	Odor
F	-	Front	R	-	Shudder	NOX	-	No Skid
B	-	Both	M	-	Momentary			

INT or INIT	-	Initial Part of Stop
MID	-	Middle of Stop
END	-	End of Stop

All stops were made manually.

APPENDIX C

Contractor's Comments
Procedure Modifications
and
Test Facility

Comments for vehicle C55100.

For all recorded decelerations:
The recorded *average* deceleration values for the tests are slightly lower than that which is required or targeted for certain test sections. However, in all cases and in reality, the driver maintained the correct required/target deceleration values for the majority of time for each of those stops. The recorded deceleration is acquired from the moment the service brake pedal is moved until the vehicle reaches zero speed. Therefore, the time needed to achieve the target deceleration (rise time) and the time the vehicle goes from the target deceleration to zero (fall time) is included in the average deceleration calculation. The rise and fall times were added to the entire length of the stops. Hence the recorded average deceleration values were generally and slightly less than the required/target deceleration values.

For Data Sheets 16 & 22 – Antilock Functional Failure at LLVW and GVWR, respectively, the ABS and the Electronic Brake Distribution (EBD) - Variable Proportioning - are integral. Failing the ABS also fails the EBD. The EBD cannot be failed separately. Therefore, Data Sheets 17 and 23 are not included.

For Data Sheets 18 through 21, the Hydraulic Circuit Failures, the tests were performed in the following order: Data Sheet 18, 19, 21 and 20. This was due to the difficult accessibility of accessing the master cylinder output ports

7.5-MILE TEST TRACK

The 7.5-mile test track encloses a 1,600-acre area, one mile wide and 3.5 miles long.

The track has a downward grade, north to south, of 0.228 percent and a cross slope in the straightaways of 3/16 inch per foot. The 1.88 mile long straightaways flow into transition areas 2,300 feet in length and then into 5,275-foot long curves with a constant radius of 2,400 feet. The 36-foot wide straightaways and the 42-foot wide curves provide three test lanes. Paved berms, 12 feet in width, border the straightaways and the inside of the curves.

As a vehicle moves toward the outside of the track in the curves, it encounters a progressively steeper bank. The inside lane (or "slow" lane) has a bank of 10 degrees allowing a neutral speed of 80 mph with no side forces. In the center lane, the slope increases to 19 degrees resulting in a neutral speed of 110 mph. The outside lane's 28-degree bank allows a 140 mph neutral speed. Rimming the outer lane is a seven-foot safety lane culminating in a 36-degree slope at the guardrail.

The facility is paved with Portland cement concrete. It carries a maximum single axle load of 36,000 pounds and a maximum tandem axle load weight of 48,000 pounds. Special provisions can be made for heavier weight loads.

With 22.5 lane miles, our track will accommodate many vehicles simultaneously. Research which utilizes the track includes component performance and durability studies, brake tests, aerodynamic studies, fuel economy studies, drive line efficiency tests, and the determination of vehicular acceleration and cruise characteristics. In addition, it supports maximum speed determination, road load power, noise and emission measurements and tire durability test programs.

The 7.5-mile test track can be used in conjunction with other facilities at TRC. It provides an excellent area for pre-test conditioning of equipment such as brake burnishing, tire break-in, and vehicle warm-up.

TRC SKID PAD

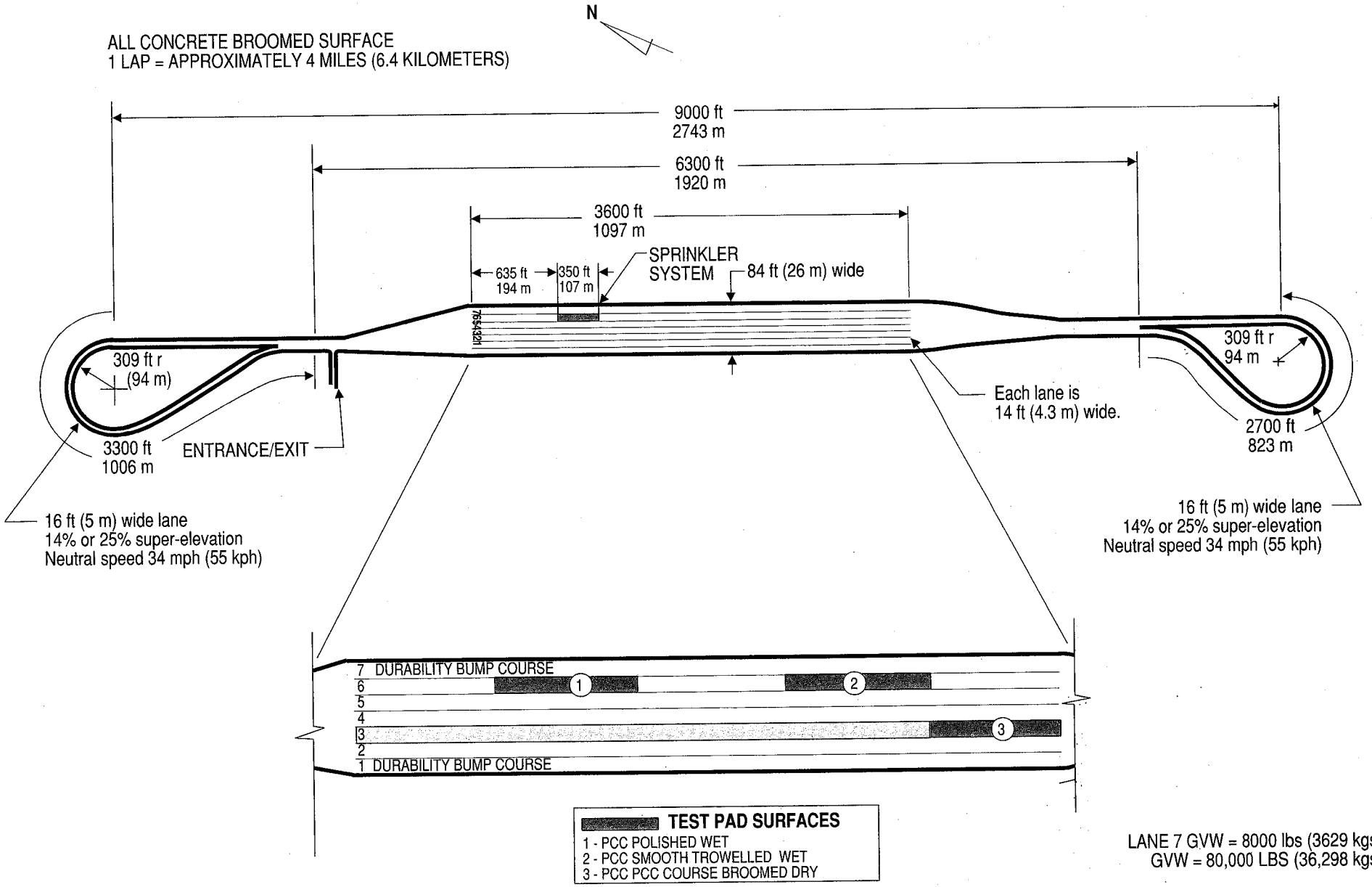
The Skid Pad is a test facility which is utilized primarily for the evaluation of tire and brake systems.

The overall dimensions of the pad are 9,000 feet by 84 feet with loops on the north and south ends. Both turnaround loops have a 309-foot radius and are 16 feet wide with a 25 percent super elevation. They will accommodate speeds of 45 mph with zero side force and 60 mph with .5 g's lateral acceleration. The acceleration/deceleration lanes at each end are 3,280 feet in length.

A test area of 210,000 square feet is situated in the center of the skid pad containing several test pads with varying surface textures. Skid numbers in this area range from 30 (wet) to 80 (dry).

The skid pad is paved with Portland cement. The load capacity of the skid pad is 36,000 pounds maximum single axle weight and 48,000 pounds maximum tandem axle weight.

Varying surface textures in the main test area are ideal for testing tire and/or brake system performance on different surfaces as characterized by "skid numbers." The skid pad is also used for acceleration studies, aerodynamics, rolling resistance, noise testing, and vehicle top speed determination.



NOTE: BUMP COURSES PARALLEL THE PERIMETERS OF LANES 1 AND 7.

Not to scale
All dimensions are approximate

SKID PAD

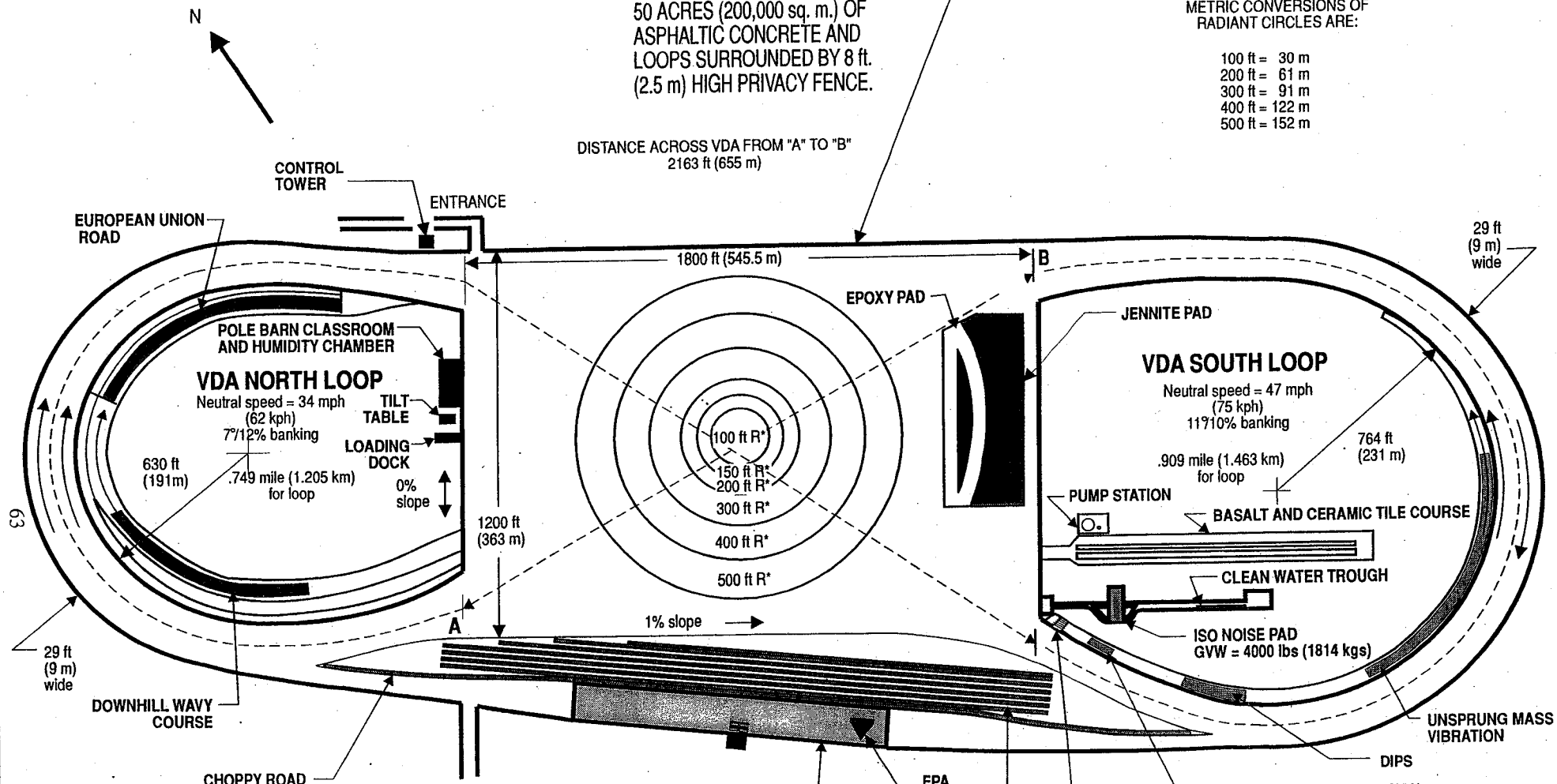
TRC®
TRANSPORTATION RESEARCH CENTER INC.
EAST LIBERTY, OHIO 43319-0367

VEHICLE DYNAMICS AREA

50 ACRES (200,000 sq. m.) OF ASPHALTIC CONCRETE AND LOOPS SURROUNDED BY 8 ft. (2.5 m) HIGH PRIVACY FENCE.

*NOTE
METRIC CONVERSIONS OF RADIANT CIRCLES ARE:

100 ft = 30 m
200 ft = 61 m
300 ft = 91 m
400 ft = 122 m
500 ft = 152 m



LOAD CAPACITY:

ASPHALT AREAS: SINGLE AXLE - 36,000 lbs (16,333 kg)
TANDEM AXLE - 48,000 lbs. (21,778 kg)
GVW - 80,000 (36,281 kgs)

OTHER COURSES: Limits Apply

Not to scale
All dimensions are approximate

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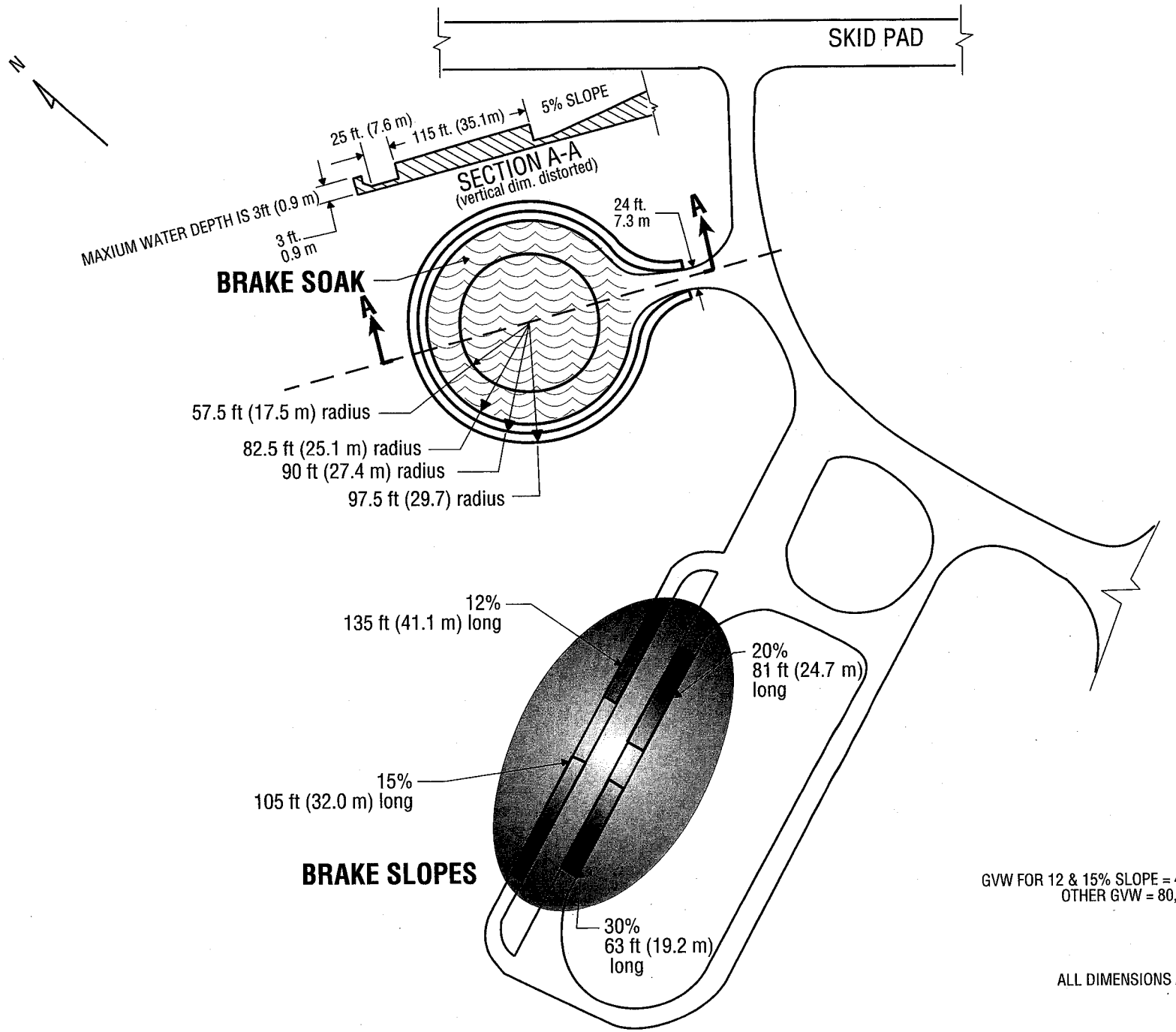
EAST LIBERTY, OHIO 43319-0367



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BRAKE SOAK and BRAKE SLOPES

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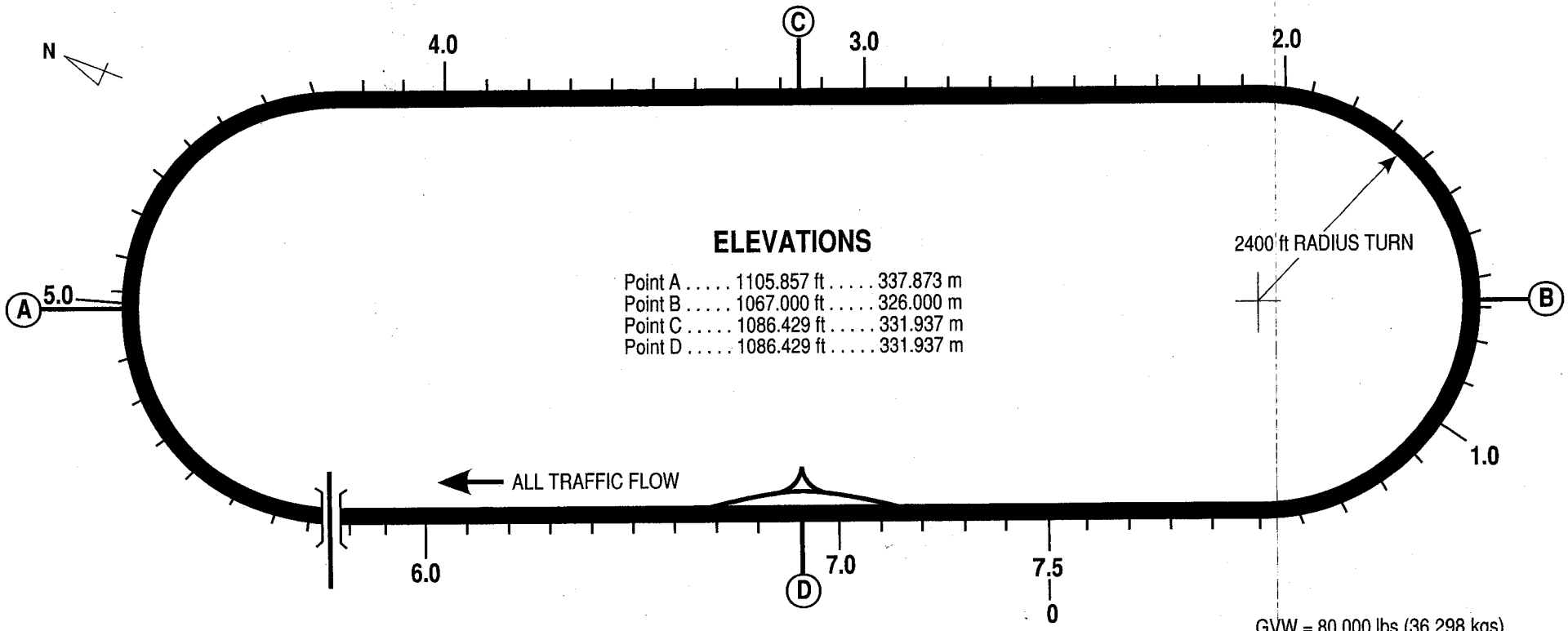
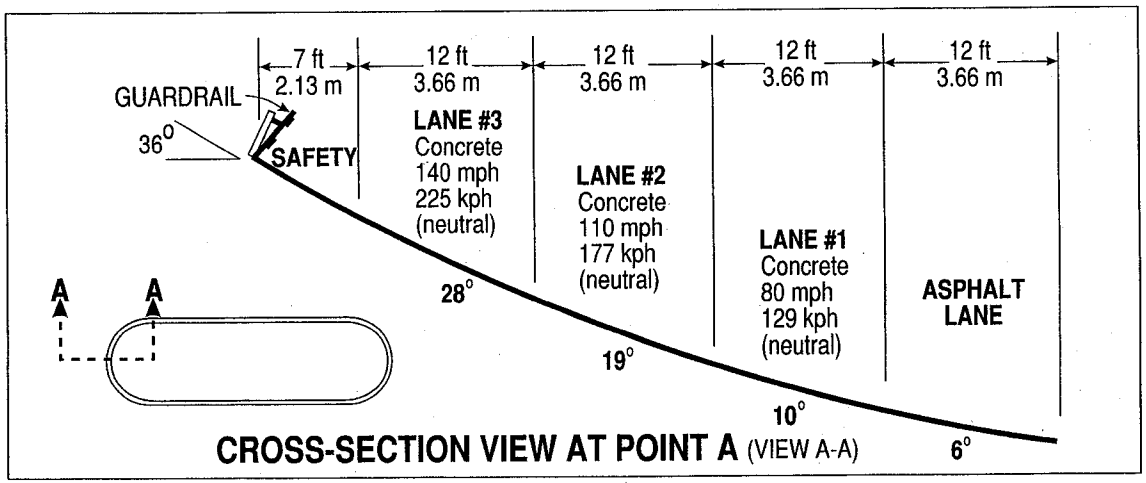
TRANSPORTATION RESEARCH CENTER INC.
EAST LIBERTY, OHIO 43319-0367
F-3 0500



ELEVATIONS

Point A . . . . . 1105.857 ft . . . . . 337.873 m
Point B . . . . . 1067.000 ft . . . . . 326.000 m
Point C . . . . . 1086.429 ft . . . . . 331.937 m
Point D . . . . . 1086.429 ft . . . . . 331.937 m

GVW = 80,000 lbs (36,298 kgs)



CROSS-SECTION VIEW AT POINT A (VIEW A-A)

DISTANCES

Lane 3 . . . . . 7.539 mi . . . . . 12.133 km
Lane 2 . . . . . 7.521 mi . . . . . 12.104 km
Lane 1 . . . . . 7.507 mi . . . . . 12.081 km

Point A to Point B . . . . . 3.333 mi . . . . . 5.364 km
Point C to Point D . . . . . .947 mi . . . . . 1.524 km

NOT TO SCALE

7.5-MILE TEST TRACK

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TRANSPORTATION RESEARCH CENTER INC.
EAST LIBERTY, OHIO 43319-0367

APPENDIX D

Notice of Possible Non-Compliance

This vehicle (C55100) met the requirements of the FMVSS 135 standard.